AD9907178C8

Service Manual

Portable CD Player

SL-SW850

Traverse Deck: RAE0220Z Mechanism Series

Colour

(S).....Silver Type

Areas

EB.....Great Britain.

EG.....Europe and Russia.

GC.....Asia and Saudi Arabia.

GN.....Oceania.

SPECIFICATIONS

Specification

Audio	
No. of channels:	**2 channels (left and right, stereo)**
Frequency response:	**20 to 20,000 Hz (+0.5dB, -1.5dB)**
Output voltage:	**0.6 V (50k Ω)**
S/N:	**more than 94 dB***
Wow and flutter:	**Below measurable limit**
DA converter:	**1 bit, MASH**
Headphones output level:	**Max. 9mW+9mW/16 Ω (adjustable)**
Pickup	
Light source:	**Semiconductor laser**
Wavelength:	**780 nm**
General	
Operational temperature range:	**0°C - 40°C**
Rechargeable temperature range:	**5°C - 40°C**
Power supply:	**DC 4.5 V**
■ Power consumption	
Power source	**ANTI-SHOCK OFF/ON**
When Using AC adaptor	**2.8W/3.0W**
When Using Battery (DC3V)	**0.3W/0.35W**
When recharging:	**Approx. 5.4W**
■ Play time	
[When used in hold mode, at 25°C (77°F) temperature and on flat and stable surface]	
Batteries used	**ANTI-SHOCK OFF/ON**
2 "AA"(LR6) alkaline batteries	**About 20h/About 25h**
Ni-cd Rechargeable batteries (RFKFP3GAVABA)	**About 10h/About 12h**
The play time may be less depending on the operating conditions.	
Recharging time:	**About 3h**
Dimensions (WxHxD):	**133x24.7x141.5mm**
Weight:	**327g with batteries**
	282g without batteries
***These specifications were measured in the ANTI-SHOCK off mode.**	
Note:	
Specifications are subject to change without notice.	
Weight and dimensions are approximate.	

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⚠ WARNING

This service information is designed for experienced repair technicians only and is not designed for use by the general public.
It does not contain warnings or cautions to advise non-technical individuals of potential dangers in attempting to service a product.
Products powered by electricity should be serviced or repaired only by experienced professional technicians. Any attempt to service or repair the product or products dealt with in this service information by anyone else could result in serious injury or death.

Panasonic®

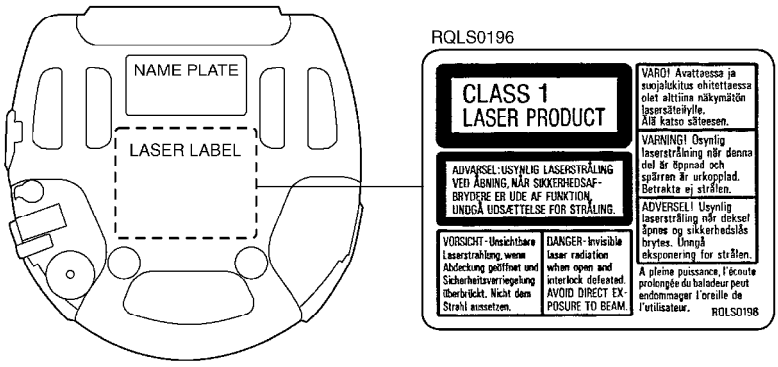
1. Precaution of Laser Diode

CAUTION:

This product utilizes a laser diode with the unit turned "on", invisible laser radiation is emitted from the pickup lens.
Wave length: 780 nm
Maximum output radiation power from pickup: 100 〃 W/VDE
Laser radiation from the pickup lens is safety level, but be sure the followings:
1. Do not disassemble the optical pickup unit, since radiation from exposed laser diode is dangerous.
2. Do not adjust the variable resistor on the pickup unit. It was already adjusted.
3. Do not look at the focus lens using optical instruments.
4. Recommend not to look at pickup lens for a long time.

ACHTUNG:

Dieses Produkt enthalt eine Laserdiode. Im eingeschalteten Zustand wird unsichtbare Leserstrahlung von der Lasereinheit abgestrahlt.
Wellenlage: 780 nm
Maximale Strahlungsleistung der Lasereinheit: 100 〃 W/VDE
Die Strahlung an der Lasereinheit ist ungefahrlich, wenn folgende Punkte beachtet werden:
1. Die Lasereinheit nicht zerlegen, da die Strahlung an der freigelegten Laserdiode gefahrlich ist.
2. Den werkseitig justierten Einstellregler der Lasereinhit nicht verstellen.
3. Nicht mit optischen Instrumenten in die Fokussierlines blicken.
4. Nicht uber langere Zeit in die Fokussierlines blicken.


NAME PLATE
LASER LABEL
RQLS0196
CLASS 1
LASER PRODUCT
ADVARSEL: USYNLIG LASERSTRÅLING VED ÅBNING, NÅR SIKKERHEDSAFBRYDERE ER UDE AF FUNKTION. UNDGÅ UDSÆTTELSE FOR STRÅLING.
VARO! Avattaessa ja suojalukitus ohitettaessa olet alttiina näkymätön lasersäteilylle. Älä katso säteeseen.
VARNING! Osynlig laserstrålning när denna del är öppnad och spärren är urkopplad. Betrakta ej strålen.
ADVERSEL! Usynlig laserstråling når dekset åpnes og sikkerhedslås brytes. Unngå eksponering for stråten.
VORSICHT - Unsichtbare Laserstrahlung, wenn Abdeckung geöffnet und Sicherheitsverriegelung überbrückt. Nicht dem Strahl aussetzen.
DANGER - Invisible laser radiation when open and interlock defeated. AVOID DIRECT EXPOSURE TO BEAM.
A pleine puissance, l'écoute prolongée du baladeur peut endommager l'oreille de l'utilisateur.
RQLS0198

[Bottom side]

2. Accessories

- Stereo headphones ..... 1 pc.
(RFEV708P-HS)
- Hand grip ..... 1 pc.
(RGQT0006-K)
- Ni-Cd rechargable batteries
with carrying case..... ..... 1 pc.
(RFKFP3GAVABA)

For EB area

- AC adaptor ..... 1 pc.
(RFEA403B-S)

For EG area

- AC adaptor ..... 1 pc.
(RFEA401E-3S)

For GC area

- AC adaptor ..... 1 pc.
(RFEA403Z-S)

For GN area

- AC adaptor ..... 1 pc.
  (RFEA403A-S)
- Plug adaptor..... 1 pc.
  (SJP5213-2)

3. Operating Instructions

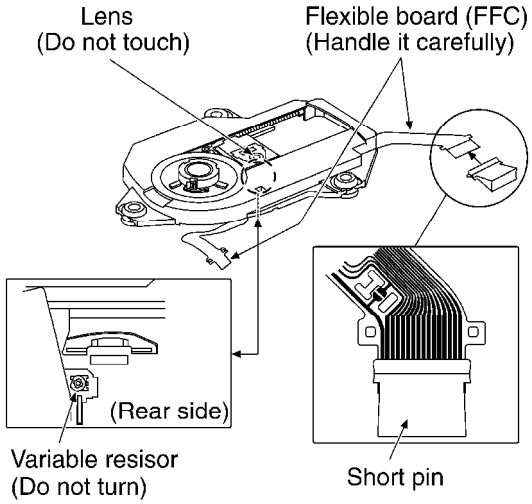
4. Handling Precautions for Traverse Deck

The laser diode in the traverse deck (optical pickup) may break down due to potential difference caused by static electricity
of clothes or human body.
So, be careful of electrostatic breakdown during repair of the traverse deck (optical pickup).

4.1. Handling the traverse deck (optical pickup)

1. The traverse deck (optical pickup) is an extremely high-precision construction and must not be subjected to impact, excessive vibration, or other types of rough handling.
2. In order to prevent static electricity damage to the laser diode, use a short pin or similar tool to short the optical pickup's flexible circuit boards after they have been disconnected from the main circuit board.
3. Handle the flexible circuit boards with care; excessive force could cause them to be broken.
4. Do not turn the pre-set variable resistor (for adjustment of the laser power); it has been adjusted at the factory. (as shown in Fig. 1)

Fig. 1



4.2. Grounding for electrostatic breakdown prevention

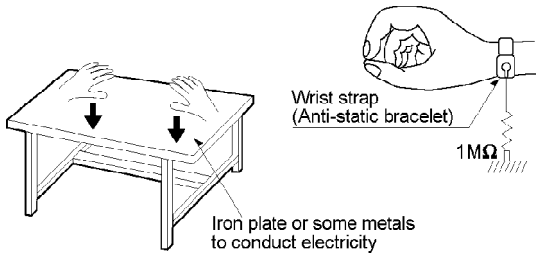
1. Human body grounding

Use the anti-static wrist strap to discharge the static electricity from your body.

2. Work table grounding

Put a conductive material (sheet) or steel sheet on the area where the optical pickup is placed, and ground the sheet. (as shown in Fig. 2)

Fig. 2



Caution:

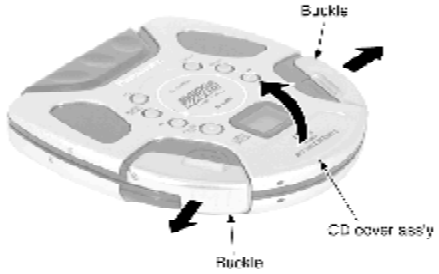
The static electricity of your clothes will not be grounded through the wrist strap.
So, take care not to let your clothes touch the traverse deck (optical pickup).

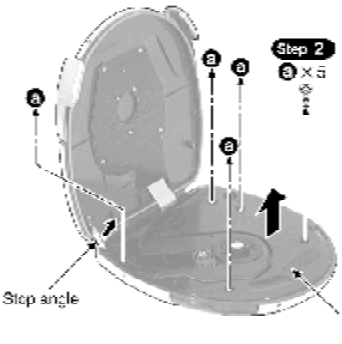
5. Operation Checks and Component Replacement Procedures

1. This section describes procedures for checking the operation of the major printed circuit boards and replacing the main components.
2. For reassembly after operation checks or replacement, reverse the respective procedures.
   Special reassembly procedures are described only when required.
3. [ ] indicates parts No.

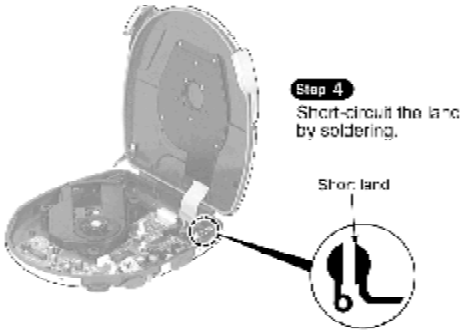
5.1 Checking for the main P.C.B. (A side)

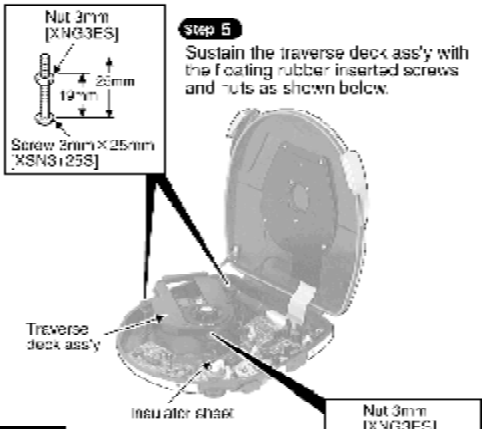
Step 1
Slide the buckle, and then open the CD cover ass'y.





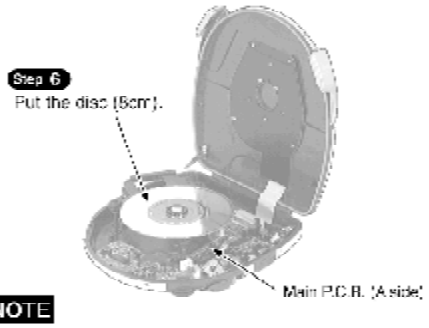
Step 3
Move the stop angle in the direction of arrow, and then remove the intermediate cabinet.





NOTE
- The tip of screw must not protrude more than 2 mm above the floating rubber.
- To keep insulation, place the insulator sheet (paper etc.) between the P.C.B. and the head of screws.

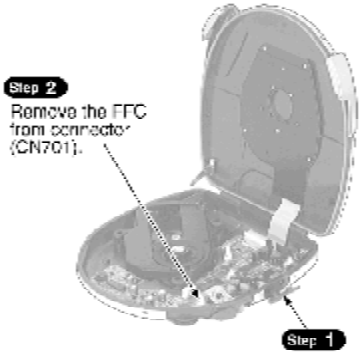
- **Check the main P.C.B. (A side) as shown below.**

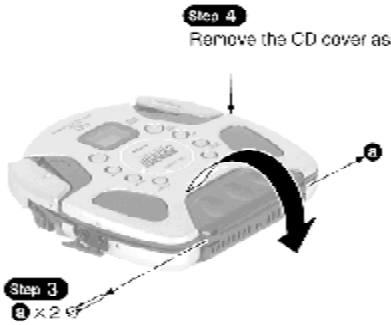


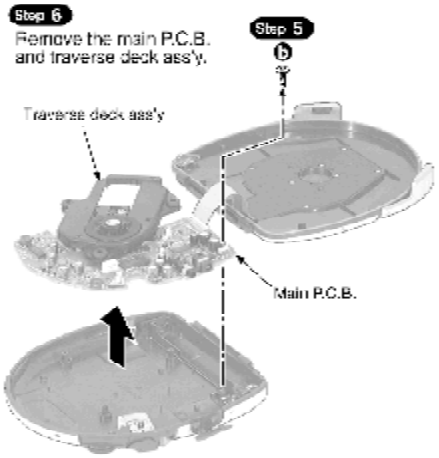
NOTE
After checking, unsolder the short land to open circuit.

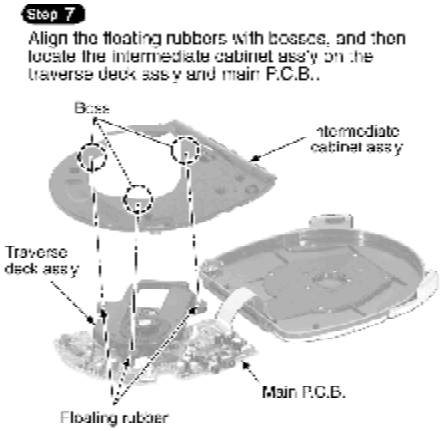
5.2 Checking for the main P.C.B. (B side)

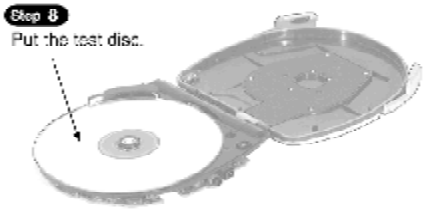
- Follow the Step 1 ~ Step 4 of the item 5.1 in checking for the main P.C.B. (A side).

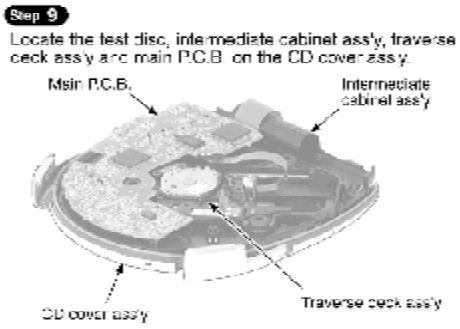




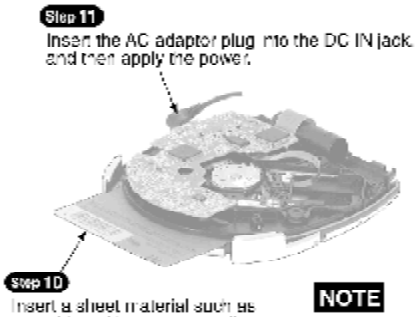



Step 7
Align the floating rubbers with bosses, and then locate the intermediate cabinet ass'y on the traverse deck ass'y and main P.C.B..
Boss
Intermediate cabinet ass'y
Traverse deck ass'y
Main P.C.B.
Floating rubber




Step 9
Locate the test disc, intermediate cabinet ass'y, traverse deck ass'y and main P.C.B. on the CD cover ass'y.
Main P.C.B.
Intermediate cabinet ass'y
CD cover ass'y
Traverse deck ass'y

- **Check the main P.C.B. (B side) as shown below.**

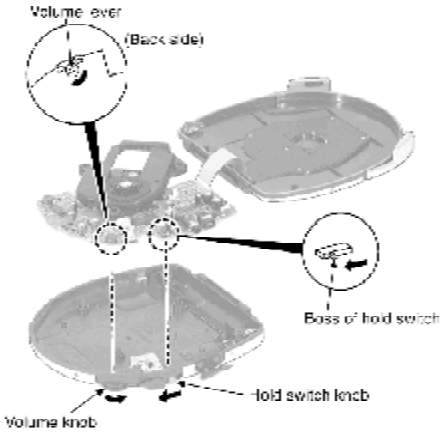

Step 11
Insert the AC adaptor plug into the DC IN jack and then apply the power.
Step 10
Insert a sheet material such as prepaid card between test disc and intermediate cabinet ass'y to prevent the test disc from rubbing.

NOTE

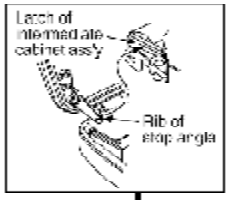
After checking, unsolder the short land to open circuit.

Notice for installation of main P.C.B.

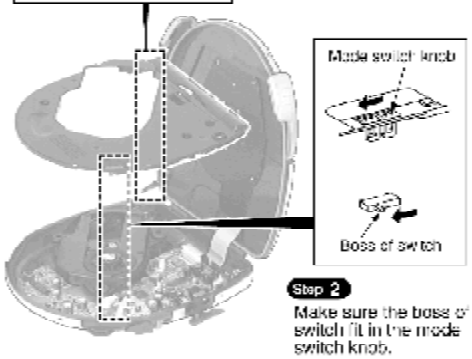
- Make sure the volume lever fit in the volume knob.
- Make sure the boss of hold switch fit in the hold switch knob.



Notice for installation of intermediate cabinet ass'y



Step 1
Insert the rib of stop angle to latch of intermediate cabinet ass'y.

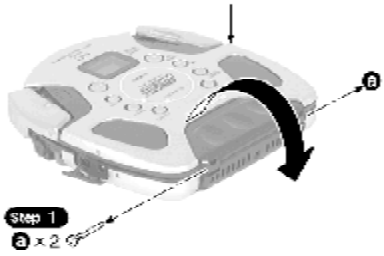


Step 2
Make sure the boss of switch fit in the mode switch knob.

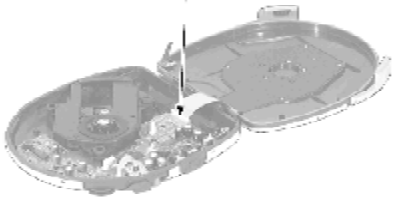
5.3 Replacement for the CD cover ass'y and LCD

- Follow the **Step 1** ~ **Step 3** of the item 5.1 in checking for the main P.C.B. (A side).

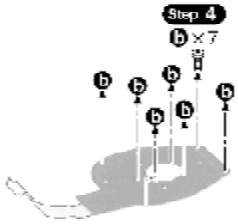
Step 2
Remove the CD cover ass'y.



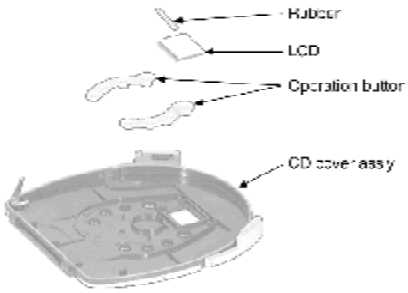
Step 3
Remove the FFC from connector (CN301).



Step 4
b x 7



Step 5
Remove the 7 screws, so the parts illustrated below will be free.

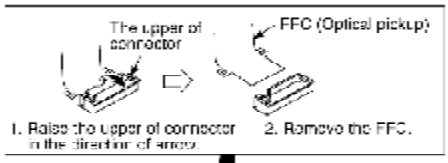


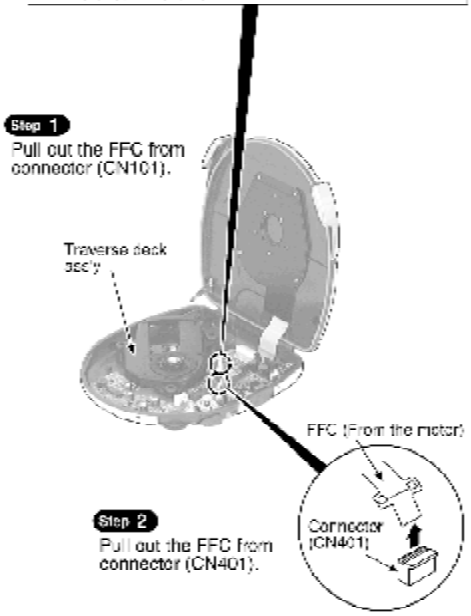
NOTE

Be careful not to be applied the dust or smudge on the surface rubber.

5.4 Replacement for the traverse deck ass'y

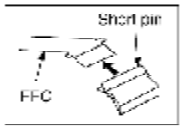
- Follow the Step 1 ~ Step 3 of the item 5.1 in checking for the main P.C.B. (A side).





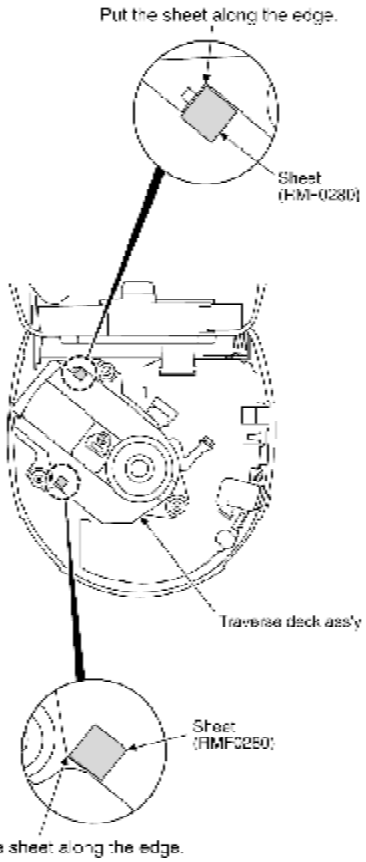
NOTE

Insert a short pin into the traverse deck's FFC.
(Refer to "**Handling Precautions for Traverse Deck**".)



Notice for installation of traverse deck ass'y

- When replacing the traverse deck ass'y, put the sheet on the surface of traverse deck ass'y as shown below.



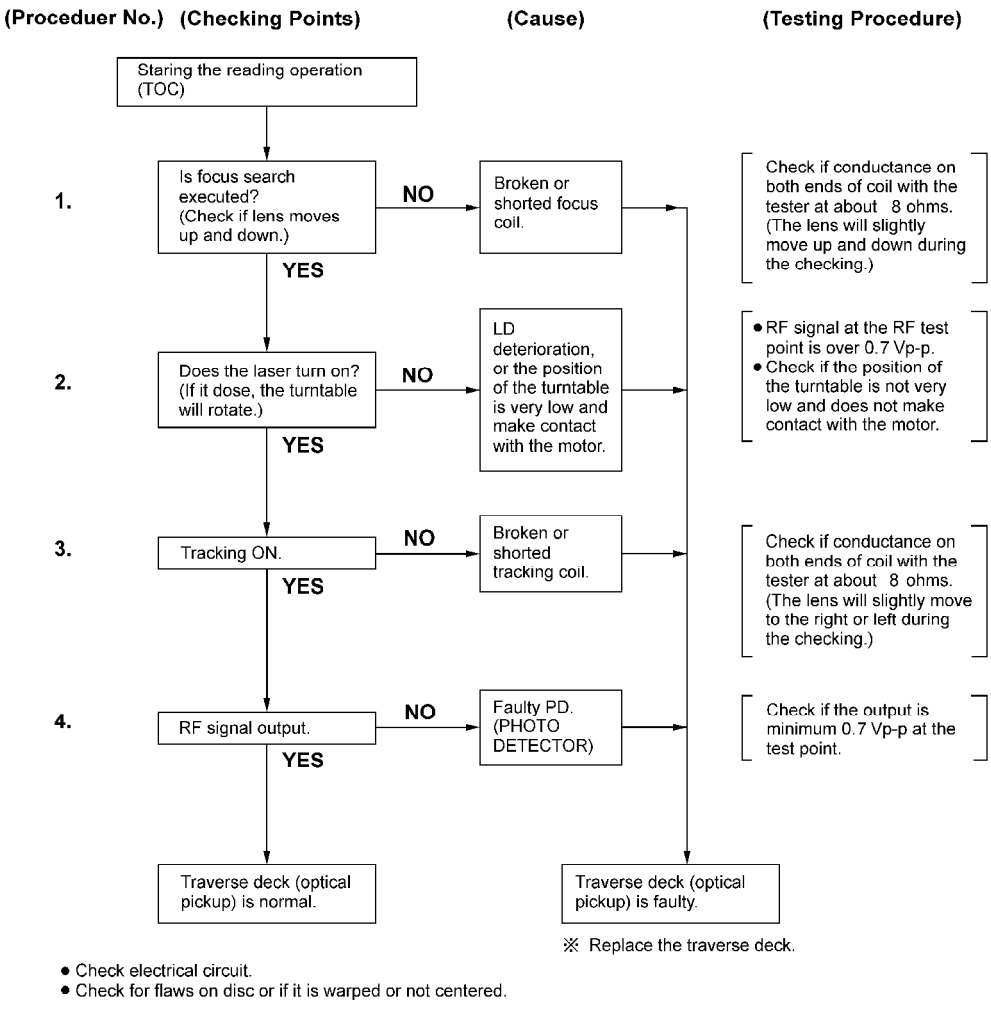
NOTE

When sticking the sheet on the traverse deck ass'y, take care that the sheet is not protruded from that edge or partially detached.

6. Checking the Operation Problems on the Traverse Deck (Optical Pickup)

Make sure to follow the procedures below to check the operation problems of the traverse deck (optical pickup) before replacing it.

Replace the traverse deck only after the problem is identified.


(Proceduer No.)
(Checking Points)
(Cause)
(Testing Procedure)
Staring the reading operation (TOC)
1.
Is focus search executed? (Check if lens moves up and down.)
NO
Broken or shorted focus coil.
Check if conductance on both ends of coil with the tester at about 8 ohms. (The lens will slightly move up and down during the checking.)
YES
2.
Does the laser turn on? (If it dose, the turntable will rotate.)
NO
LD deterioration, or the position of the turntable is very low and make contact with the motor.
● RF signal at the RF test point is over 0.7 Vp-p.
● Check if the position of the turntable is not very low and does not make contact with the motor.
YES
3.
Tracking ON.
NO
Broken or shorted tracking coil.
Check if conductance on both ends of coil with the tester at about 8 ohms. (The lens will slightly move to the right or left during the checking.)
YES
4.
RF signal output.
NO
Faulty PD. (PHOTO DETECTOR)
Check if the output is minimum 0.7 Vp-p at the test point.
YES
Traverse deck (optical pickup) is normal.
Traverse deck (optical pickup) is faulty.
※ Replace the traverse deck.
● Check electrical circuit.
● Check for flaws on disc or if it is warped or not centered.

■ **Check the operations described below on the traverse deck after replacing it.**

*** Checking Skip Search**

1. Play an ordinary musical program disc.

2. Press the skip button to check for normal skip search operation (in both the forward and reverse directions).

*** Checking Manual Search**

1. Play an ordinary musical program disc.

2. Press the manual search button to check for smooth manual search operations at either low or high speed (in both the forward and reverse directions).

*** Checking Playability**

1. **Play the 0.7 mm black dot and the 0.7 mm wedge on the playability test disc (SZZP1054C) and verify that no sound skip or noise occurs.**
2. **play the middle tracks of the uneven test disc (SZZP1056C) and verify that no sound skip or noise occurs.**

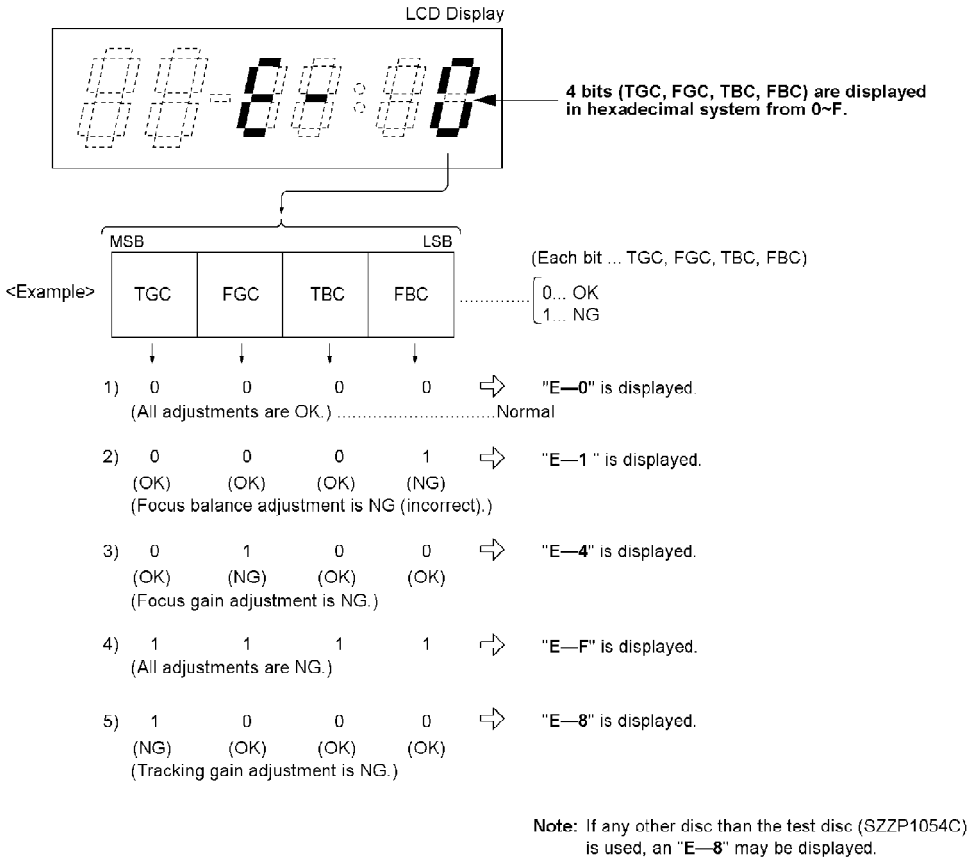
7. Automatic Adjustment Results Display Function (Self-check Function)

On this unit (SL-SW850), each automatic adjustment results are displayed on the LCD. This function is convenient to check or identify which automatic adjustment circuit is incorrect. The followings are the contents of the automatic adjustment result displays (self-check function).

7.1. How to display automatic adjustment results

1. **Load the test disc (SZZP1054C).**
2. **Press the (SKIP/SEARCH) and (SKIP/SEARCH) Buttons simultaneously and hold them, and additionally press the (PLAY/PAUSE) Button.**
3. **Press the (STOP/POWER OFF) Button once.**
4. **An automatic adjustment result is displayed on the LCD.**

7.2. Display of automatic adjustment results(self-check function)


LCD Display
4 bits (TGC, FGC, TBC, FBC) are displayed in hexadecimal system from 0~F.
MSB
LSB
<Example>
TGC
FGC
TBC
FBC
(Each bit ... TGC, FGC, TBC, FBC)
0... OK
1... NG
1) 0 0 0 0 "E—0" is displayed.
(All adjustments are OK.) .....Normal
2) 0 0 0 1 "E—1 " is displayed.
(OK) (OK) (OK) (NG)
(Focus balance adjustment is NG (incorrect).)
3) 0 1 0 0 "E—4" is displayed.
(OK) (NG) (OK) (OK)
(Focus gain adjustment is NG.)
4) 1 1 1 1 "E—F" is displayed.
(All adjustments are NG.)
5) 1 0 0 0 "E—8" is displayed.
(NG) (OK) (OK) (OK)
(Tracking gain adjustment is NG.)
Note: If any other disc than the test disc (SZZP1054C) is used, an "E—8" may be displayed.

<Example>

Follow the below steps when "E-1" is displayed.

(Cause: Focus balance (FBC) is set beyond the limit.)

■ Check if

(1) the waveform or voltage of the focus servo circuit is correct.

(2) the optical pickup returns to the normal state by exchanging the traverse deck.

Follow the below steps when "E-4" is displayed.

(Cause: Focus gain (FGC) is set beyond the limit.)

■ Check if

(1) the waveform or voltage of the focus servo circuit is correct.

(2) the focus coil of the optical pickup is correct (around 15 ohms).

(3) the optical pickup returns to the normal state by exchanging the traverse deck.

Follow the below steps when "E-F" is displayed.

(Cause: All adjustments (TGC, FGC, TBC, FBC) are set beyond the limit.)

■ Check if

(1) the optical pickup returns to the normal state by exchanging the traverse deck.

(2) the waveform or voltage of the servo IC's are correct.

Note:

It is not always necessary to exchange the traverse deck when an error message is displayed. Be sure to check if the circuit is defective or not before exchanging the traverse deck.

Note:

If any other disc than the test disc (SZZP1054C) is used, an error message may be displayed. This is not a malfunction.

8. Measurements and Adjustments

Warning:

This product uses a laser diode. Refer to caution statements.

ACHTUNG:

- Die lasereinheit nicht zerlegen.
- Die lasereinheit darf nur gegen ein vom hersteller spezifizierte einheit ausgetauscht werden.

■ Measuring instruments and special tools

- Test discs
1. Playability test disc (SZZP1054C)
2. Uneven test disc (SZZP1056C)
- Musical program disc (ordinary)
- DC voltmeter
- Lead wire (for test points)

■ Test short land

Short-circuit the lands of the laser ON/OFF switch (SW201) by soldering them. It turns "ON" position. (Refer to below Fig. 3 or printed circuit board and wiring connection diagram for short land location on page 18.)

Note: Remove the solders from the lands after adjustment.

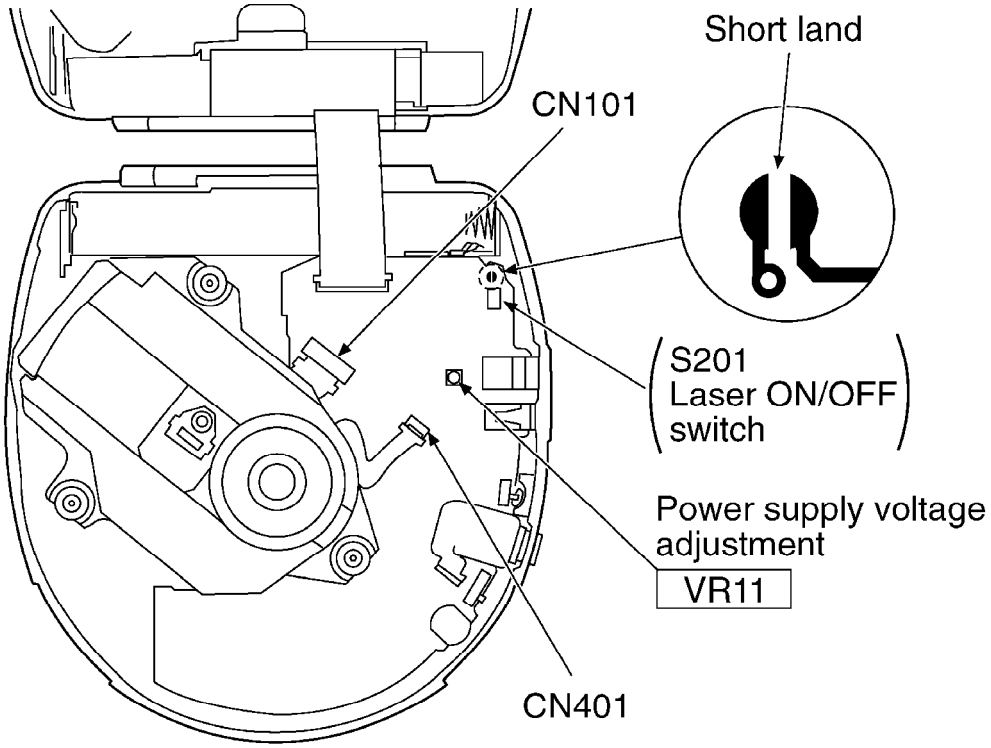
■ Adjustment point

Notes:

1. Please refer to the printed circuit board and wiring connection diagram for test point locations.

2. Take care to connect CN101 and CN401. (as shown in Fig. 3)

Fig. 3



8.1. POWER SUPPLY VOLTAGE ADJUSTMENT

1. **Connect the DC voltmeter to VDD(+) and GND on the P.C.B.**
2. **Connect the AC adaptor cord to the DC (IN) port and move the PLAY switch to the ON position. Anti-shock is set in OFF position. (Use a new dry cell battery or a rechargeable battery that is full charged.)**
3. **Insert the test disc, and switch the player power ON.**
4. **Adjust VR11 on the P.C.B. at 2.45 +/- 0.02V(EQ switch in “Normal” position), as shown in Fig. 3.**

8.2. CHECK OF PLAY OPERATION

*** Checking Skip Search**

1. **Play an ordinary musical program disc.**
2. **Press the skip button to check for normal skip search operation (in both the forward and reverse directions).**

*** Checking Manual Search**

1. **Play an ordinary musical program disc.**

2. Press the manual search button to check for smooth manual search operations at either low or high speed (in both the forward and reverse directions).

*** Checking Playability**

1. Play the 0.7 mm black dot and the 0.7 mm wedge on the playability test disc (SZZP1054C) and verify that no sound skip or noise occurs.
2. Play the middle tracks of the uneven test disc (SZZP1056C) and verify that no sound skip or noise occurs.

9. Outline of 40-Second Sound Keeper Technique Used for Prevention of Sound from Skipping

9.1. Conventional Shockproofing Technique

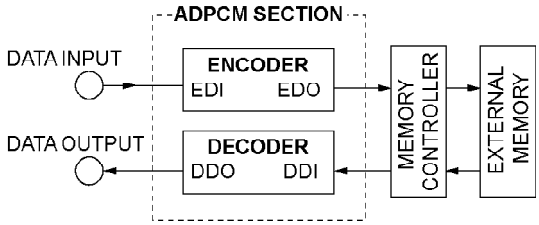
Input information read out of the CD at double speed is demodulated, stored in the memory, and while sound-marking signal is supplied at normal speed from the memory to the D/A converter, the residual data is accumulated in the memory.
If reaccess to the break point is accomplished before the memory becomes empty, apparent playback sound is entirely kept free from breaking even when information pauses due to vibration, etc. It was necessary to use the 16M bit memory for securing the accumulation time of about 40 seconds.

9.2. Compression-shockproofing [Outline]

Fig. 4 is a block diagram showing the compression-shockproofing mechanism, the difference of which from the conventional mechanism is as follows: Input information read out at double speed undergoes data compression (16 bits -- 4 bits) by the encoder in the ADPCM (Adaptive Difference PCM) and stored in the external memory; the stored memory information undergoes data elongation (4 bits -- 16 bits) by the decoder in the ADPCM and supplied at normal speed to the D/A converter.
The data compression technique has conduced to reduction of required memory capacity from 4M bits to 1M bit for securing the accumulation time equivalent to the conventional.

Fig. 4

All-inclusive Block Diagram



10. Schematic Diagram Note

10.1. Schematic Diagram Notes

10.2. Type Illustration of IC's, Transistors and Diodes

11. Schematic Diagram

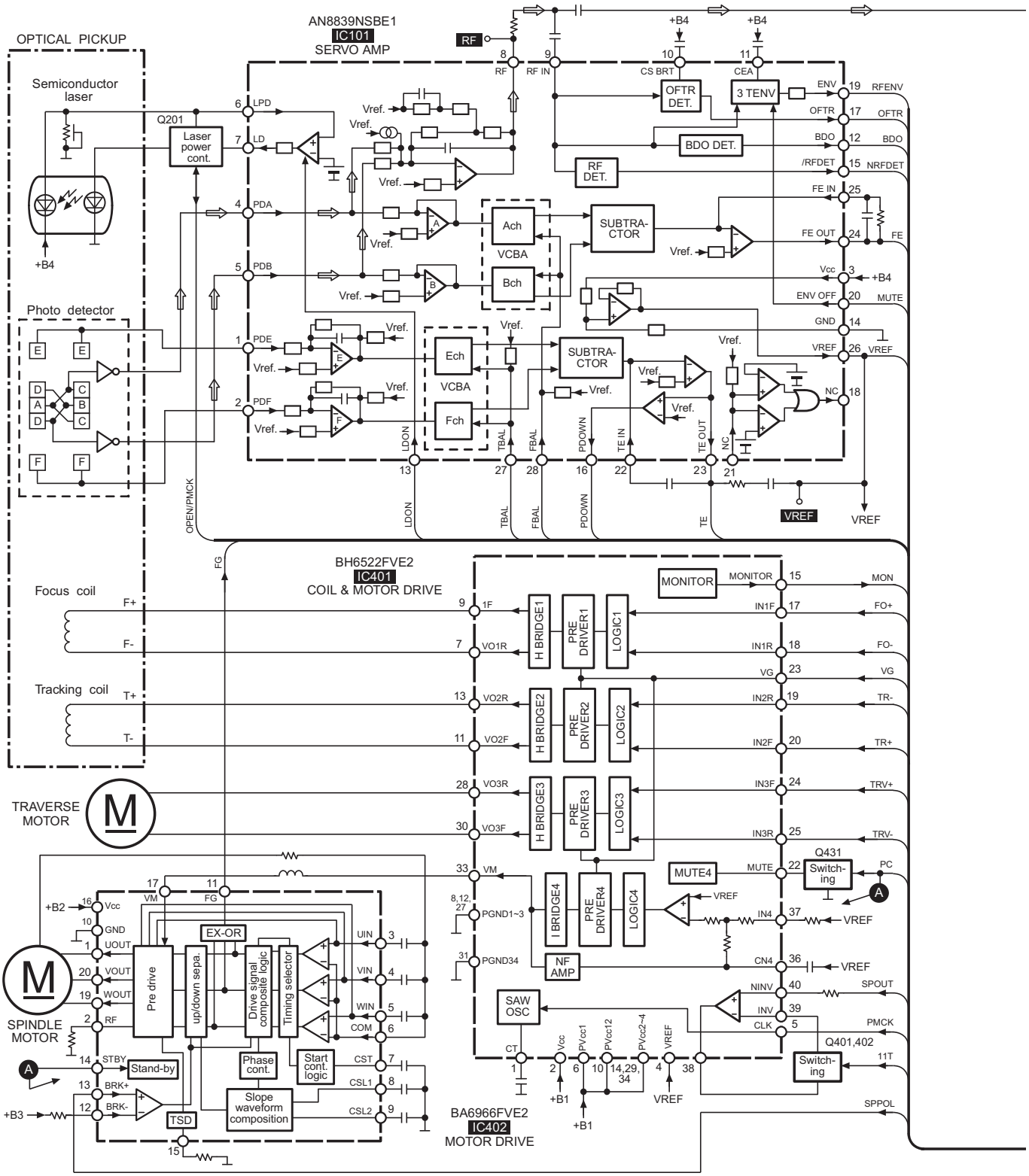
12. Printed Circuit Board and Wiring Connection Diagram

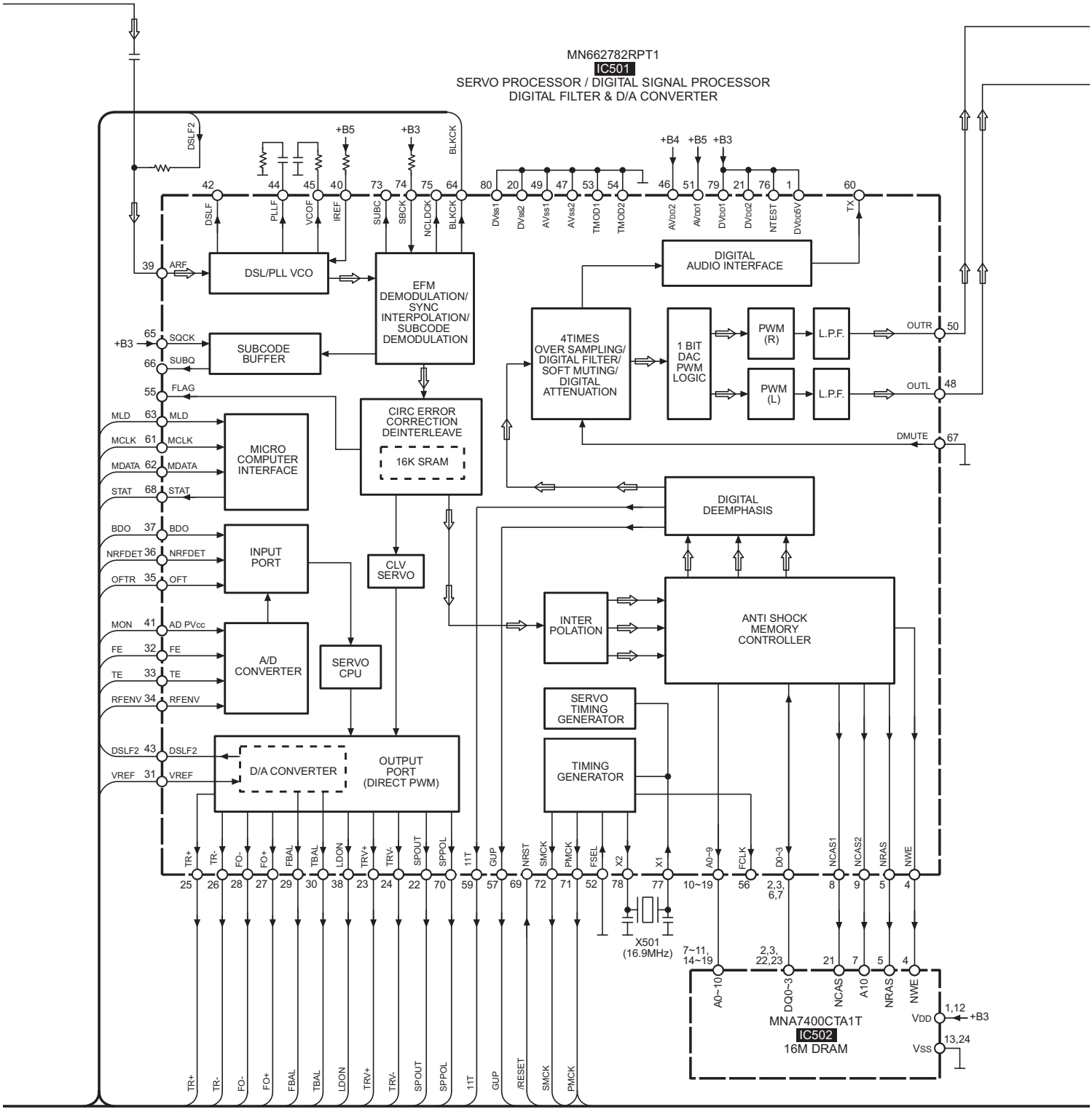
13. Block Diagram

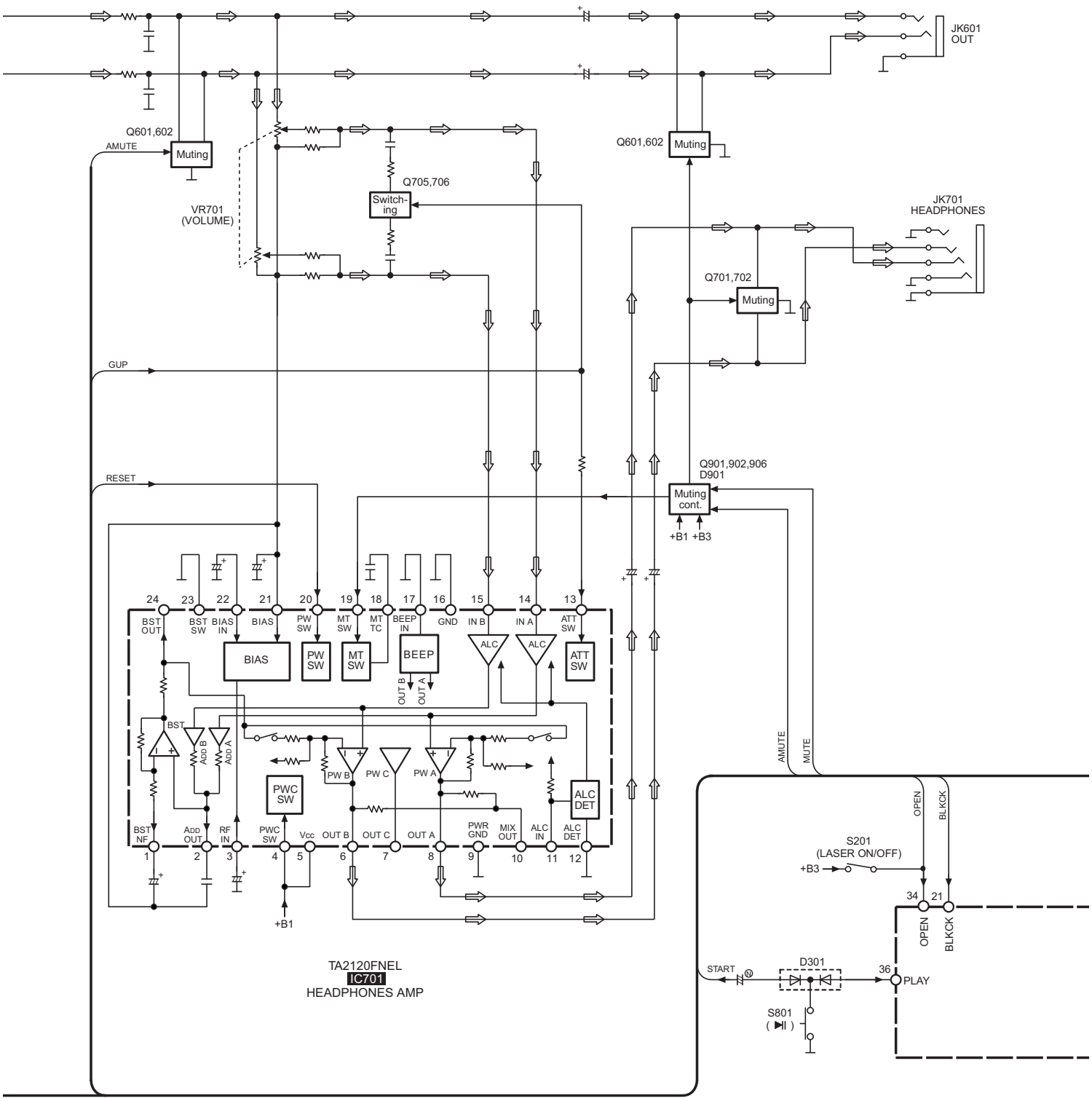
14. Terminal Function of IC's

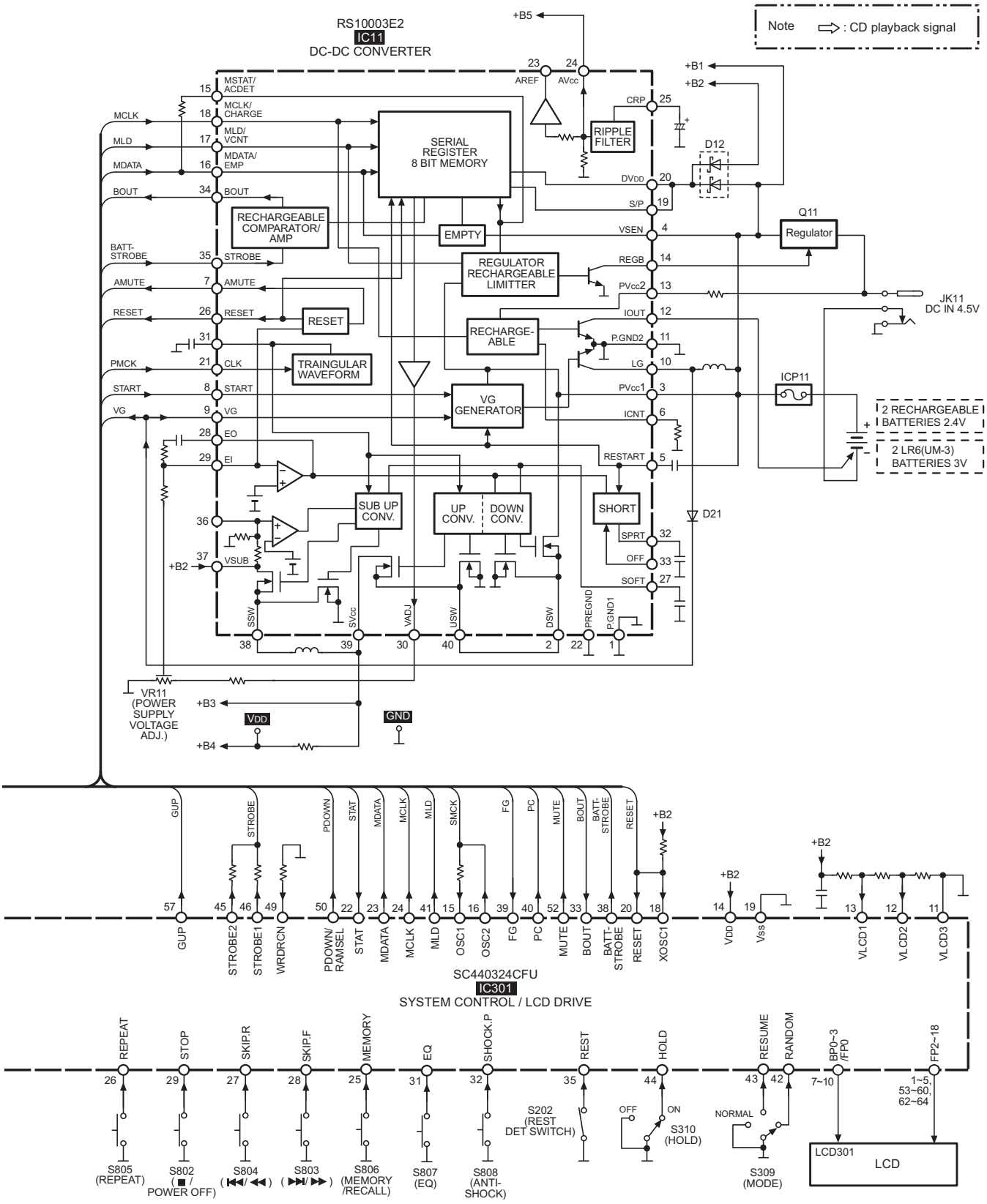
14.1. IC101(AN8839NSBE1):SERVO AMP

Pin No.	Mark	I/O Division	Function
1	PDE	I	Tracking signal input (1)
2	PDF	I	Tracking signal input (2)
3	VDD	I	Power supply
4	PDA	I	Focus signal input (1)
5	PDB	I	Focus signal input (2)
6	LPD	I	APC amplifier input
7	LD	O	APC amplifier output
8	RF	O	RF addition output
9	RF IN	I	RF detection signal input
10	CSBRT	I	Capacitor connection for OFTR
11	CEA	I	HPF amplifier capacitor connection
12	BDO	O	Dropout signal output (H: dropout)
13	LDON	I	APC control input
14	GND	---	Ground connection


OPTICAL PICKUP
Semiconductor laser
Photo detector
AN8839NSBE1
IC101
SERVO AMP
RF
RF IN
CS BRT
CEA
+B4
OFTR DET.
3 TENV
BDO DET.
RF DET.
ENV
OFTR
BDO
/RFDET
RFENV
NRFDET
FE IN
FE OUT
FE
Vcc
MUTE
ENV OFF
GND
VREF
NC
LPD
LD
PDA
PDB
PDE
PDF
Q201
Laser power cont.
Ach
Bch
Ech
Fch
VCBA
SUBTRA-CTOR
LDON
TBAL
FBAL
PDOWN
TE IN
TE OUT
TE
OPEN/PMCK
FG
BH6522FVE2
IC401
COIL & MOTOR DRIVE
Focus coil
Tracking coil
F+
F-
T+
T-
TRAVERSE MOTOR
SPINDLE MOTOR
H BRIDGE1
H BRIDGE2
H BRIDGE3
I BRIDGE4
PRE DRIVER1
PRE DRIVER2
PRE DRIVER3
PRE DRIVER4
LOGIC1
LOGIC2
LOGIC3
LOGIC4
MONITOR
MUTE4
NF AMP
SAW OSC
Q431
Switch-ing
Q401,402
PC
SPOUT
PMCK
11T
SPPOL
EX-OR
Pre drive
up/down sepa.
Drive signal composite logic
Timing selector
Phase cont.
Start cont. logic
Slope waveform composition
Stand-by
TSD
BA6966FVE2
IC402
MOTOR DRIVE
+B1
+B2
+B3
VREF


MN662782RPT1
IC501
SERVO PROCESSOR / DIGITAL SIGNAL PROCESSOR
DIGITAL FILTER & D/A CONVERTER
DSLF2
+B5
+B3
BLKCK
+B4
+B5
+B3
42 DSLF
44 PLLF
45 VCOF
40 IREF
73 SUBC
74 SBCK
75 NCLDCK
64 BLKCK
80 DVss1
20 DVss2
49 AVss1
47 AVss2
53 TMOD1
54 TMOD2
46 AVDD2
51 AVDD1
79 DVDD1
21 DVDD2
76 NTEST
1 DVDD5V
60 TX
39 ARF
DSL/PLL VCO
EFM DEMODULATION/ SYNC INTERPOLATION/ SUBCODE DEMODULATION
DIGITAL AUDIO INTERFACE
+B3
65 SQCK
66 SUBQ
SUBCODE BUFFER
55 FLAG
4TIMES OVER SAMPLING/ DIGITAL FILTER/ SOFT MUTING/ DIGITAL ATTENUATION
1 BIT DAC PWM LOGIC
PWM (R)
PWM (L)
L.P.F.
L.P.F.
OUTR 50
OUTL 48
DMUTE 67
MLD 63 MLD
MCLK 61 MCLK
MDATA 62 MDATA
STAT 68 STAT
MICRO COMPUTER INTERFACE
CIRC ERROR CORRECTION DEINTERLEAVE
16K SRAM
DIGITAL DEEMPHASIS
BDO 37 BDO
NRFDET 36 NRFDET
OFTR 35 OFT
INPUT PORT
CLV SERVO
INTER POLATION
ANTI SHOCK MEMORY CONTROLLER
MON 41 AD PVcc
FE 32 FE
TE 33 TE
RFENV 34 RFENV
A/D CONVERTER
SERVO CPU
SERVO TIMING GENERATOR
DSLF2 43 DSLF2
VREF 31 VREF
D/A CONVERTER
OUTPUT PORT (DIRECT PWM)
TIMING GENERATOR
TR+ 25
TR- 26
FO- 28
FO+ 27
FBAL 29
TBAL 30
LDON 38
TRV+ 23
TRV- 24
SPOUT 22
SPPOL 70
11T 59
GUP 57
NRST 69
SMCK 72
PMCK 71
FSEL 52
X2 78
X1 77
A0~9 10~19
FCLK 56
DI0~3 2,3, 6,7
NCAS1 8
NCAS2 9
NRAS 5
NWE 4
X501 (16.9MHz)
7~11, 14~19 A0~10
2,3, 22,23 DQ0~3
21 NCAS
7 A10
5 NRAS
4 NWE
MNA7400CTA1T
IC502
16M DRAM
1,12 VDD +B3
13,24 VSS
TR+ TR- FO- FO+ FBAL TBAL LDON TRV+ TRV- SPOUT SPPOL 11T GUP /RESET SMCK PMCK


JK601
OUT
Q601,602
AMUTE
Muting
Q705,706
Switch-
ing
VR701
(VOLUME)
Q601,602
Muting
JK701
HEADPHONES
Q701,702
Muting
GUP
RESET
Q901,902,906
D901
Muting
cont.
+B1 +B3
24 23 22 21 20 19 18 17 16 15 14 13
BST OUT
BST SW
BIAS IN
BIAS
PW SW
MT SW
MT TC
BEEP IN
GND
IN B
IN A
ATT SW
BIAS
PW SW
MT SW
BEEP
ALC
ALC
ATT SW
OUT B
OUT A
BST
ADD B
ADD A
PW B
PW C
PW A
PWC SW
ALC DET
BST NF
ADD OUT
RF IN
PWC SW
Vcc
OUT B
OUT C
OUT A
PWR GND
MIX OUT
ALC IN
ALC DET
1 2 3 4 5 6 7 8 9 10 11 12
+B1
AMUTE
MUTE
OPEN
BLKCK
S201
(LASER ON/OFF)
+B3
34
21
OPEN
BLKCK
START
D301
36
PLAY
S801
(▶II)
TA2120FNEL
IC701
HEADPHONES AMP

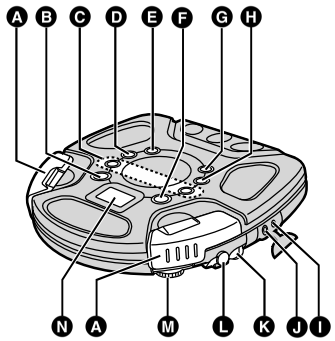

Note : CD playback signal
RS10003E2
IC11
DC-DC CONVERTER
+B5
+B1
+B2
AREF
AVcc
CRP
RIPPLE FILTER
D12
MSTAT/ ACDET
MCLK/ CHARGE
MLD/ VCNT
MDATA/ EMP
BOUT
SERIAL REGISTER 8 BIT MEMORY
DVDD
S/P
VSEN
Q11
Regulator
RECHARGEABLE COMPARATOR/ AMP
EMPTY
REGULATOR RECHARGEABLE LIMITTER
REGB
PVcc2
IOUT
P.GND2
LG
PVcc1
ICNT
RESTART
JK11
DC IN 4.5V
MCLK
MLD
MDATA
BOUT
BATT-STROBE
AMUTE
RESET
PMCK
START
VG
EO
EI
VSUB
STROBE
RESET
TRAINGULAR WAVEFORM
RECHARGE-ABLE
VG GENERATOR
ICP11
2 RECHARGEABLE BATTERIES 2.4V
2 LR6(UM-3) BATTERIES 3V
SUB UP CONV.
UP CONV.
DOWN CONV.
SHORT
D21
SPRT
OFF
SOFT
SSW
SVcc
VADJ
USW
DSW
PREGND
P.GND1
VR11 (POWER SUPPLY VOLTAGE ADJ.)
+B3
+B4
VDD
GND
GUP
STROBE
PDOWN
STAT
MDATA
MCLK
MLD
SMCK
FG
PC
MUTE
BOUT
BATT-STROBE
RESET
+B2
GUP
STROBE2
STROBE1
WRDRCN
PDOWN/ RAMSEL
STAT
MDATA
MCLK
MLD
OSC1
OSC2
FG
PC
MUTE
BOUT
BATT-STROBE
RESET
XOSC1
VDD
Vss
VLCD1
VLCD2
VLCD3
SC440324CFU
IC301
SYSTEM CONTROL / LCD DRIVE
REPEAT
STOP
SKIP.R
SKIP.F
MEMORY
EQ
SHOCK.P
REST
HOLD
RESUME
RANDOM
BP0~3 /FP0
FP2~18
S805 (REPEAT)
S802 (■ / POWER OFF)
S804 (⏮/ ◀◀)
S803 (▶▶/ ⏭)
S806 (MEMORY /RECALL)
S807 (EQ)
S808 (ANTI-SHOCK)
S202 (REST DET SWITCH)
OFF
ON
S310 (HOLD)
NORMAL
S309 (MODE)
LCD301
LCD
1~5, 53~60, 62~64
7~10

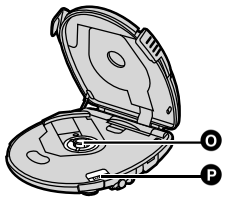
Notes:

- S201 : Laser ON/OFF switch in “OFF” position.
  (It turns “ON” with disc holder closed.)
- S202: Rest detector in “OFF” position.
  (It turns “ON” when optical pickup comes to innermost periphery.)
- S309 : Play mode selector (MODE) in “NORMAL” position.
  (RANDOM ⇔ NORMAL ⇔ RESUME)
- S310 : Hold (HOLD) switch in “OFF” position.
- S801 : Play/pause (▶/❚❚) switch.
- S802 : Stop/power off (■/ POWER OFF) switch.
- S803,: Skip/search (▶▶❙ /▶▶ , ❙◀◀ /◀◀) switches.
- S804 [S803 : ▶▶❙ /▶▶ , S804 : ❙◀◀ /◀◀]
- S805 : Repeat (REPEAT) switch.
- S806 : Memory/recall (MEMORY/RECALL) switch.
- S807 : EQ (EQ)switch.
- S808 : Anti-shock (A.SHOCK) switch.
- VR11 : Power supply voltage adjustment.
- VR701 : Headphones volume (VOLUME) control.
- Important safety notice:
  Components identified by ⚠ mark have special characteristics important for safety.
  Furthermore, special parts which have purposes of fire-retardant (resistors), high-quality sound (capacitors), low-noise (resistors), etc. are used. When replacing any of components, be sure to use only manufacture’s specified parts shown in the parts list.
- The supply part number is described alone in the replacement parts.
- ➡ : +B lines.
- ⇨ : CD playback signal lines.
- The voltage value and waveforms are the reference voltage of this measured by DC electronic voltmeter (high impedance) and oscilloscope on the basis of GND terminal (DC IN Jack). Accordingly, there may arise some errors in the voltage values and waveforms depending upon the internal impedance of the tester or measuring unit.
  Measurement conditions:
  ∗AC adaptor is used for power supply.
  ∗Set the headphones VR(VR701) to center position(No.5).
  ∗Set the hold lock and ANTI-SHOCK switches to ON.
  ∗The parenthesized is the voltage for test disc (1 kHz, L+R, 0 dB) in play mode, and the other, for no disc in stop mode.

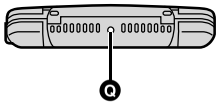
Caution!!

- IC and LSI are sensitive to static electricity.
- Secondary trouble can be prevented by taking care during repair.
- Cover the parts boxes made of plastics with aluminum foil.
- Ground the soldering iron.
- Put a conductive mat on the work table.
- Do not touch the pins of IC or LSI with fingers directly.





Back panel of the unit
Panel trasero del aparato
Apparatens baksida



Location of Controls

- **Ⓐ Dual lock (OPEN)**
- **Ⓑ Stop/operation off button (■, POWER OFF)**
- **Ⓒ Skip/search buttons (|◀◀, ▶▶| ◀◀, ▶▶)**
- **Ⓓ Memory/recall button (MEMORY/RECALL)**
- **Ⓔ EQ button (EQ)**
- **Ⓕ Play/pause button (▶ ❚❚)**
- **Ⓖ Anti-shock button (A.SHOCK)**
- **Ⓗ Repeat button (REPEAT)**
- **Ⓘ DC in jack (DC IN 4.5 V ⟐⊙⟐)**
- **Ⓙ Out jack (OUT)**
- **Ⓚ Hold switch (HOLD)**
- **Ⓛ Headphone jack (🎧)**
- **Ⓜ Headphones volume control (VOLUME)**
- **Ⓝ Display**
- **Ⓞ CD release button (PUSH)**
- **Ⓟ Play mode selector (MODE)**
- **Ⓠ Hole for car mounting base**

HOLD Function

This function causes the unit to ignore short, accidental button presses. (The disc lid can still be opened and closed.)

The HOLD function prevents the following:

- Powering on the unit accidentally (which can cause the batteries to go dead).
- Play being cut off unexpectedly in the middle of a selection.

To use the HOLD function

Set [HOLD] to the HOLD position.

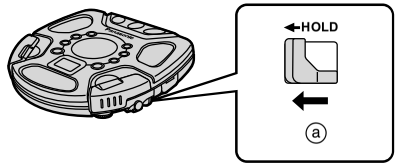
ⓐ HOLD mode

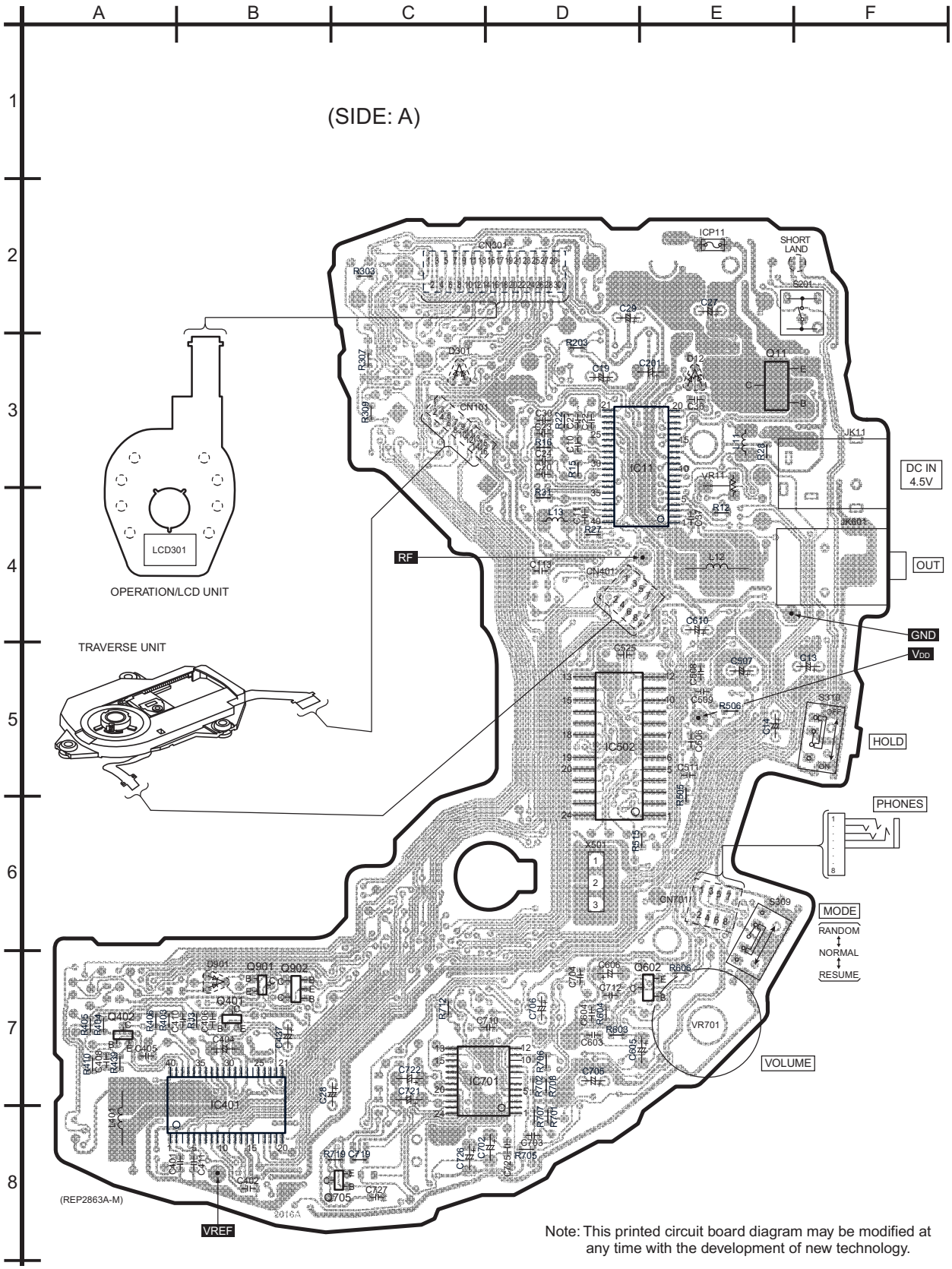
"hold" Indication

When the unit is in hold status, pressing any button causes the indication "hold" to appear on the display.

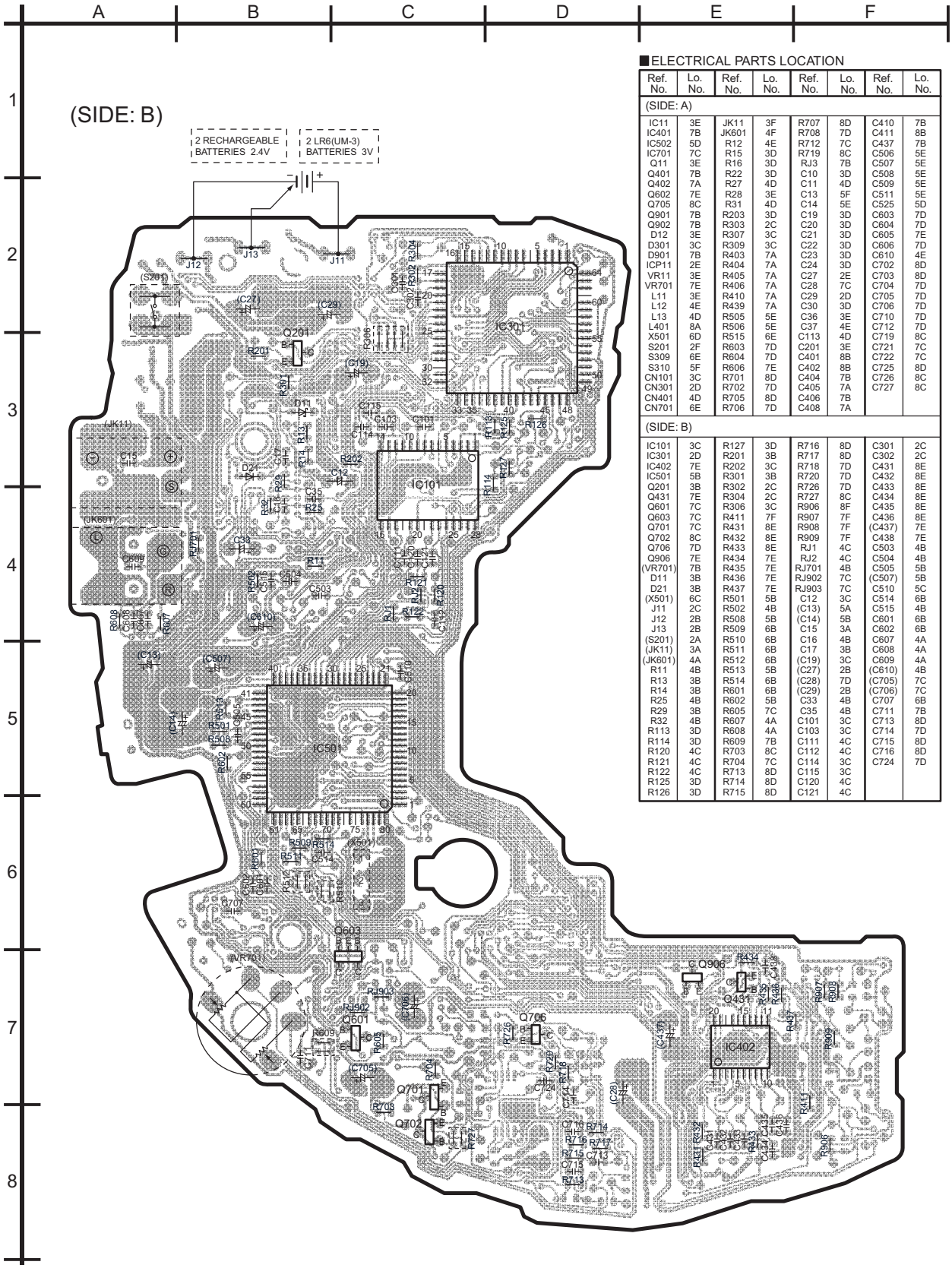
When the unit is powered off

The "hold" indication appears only when [▶ ❚❚] is pressed.



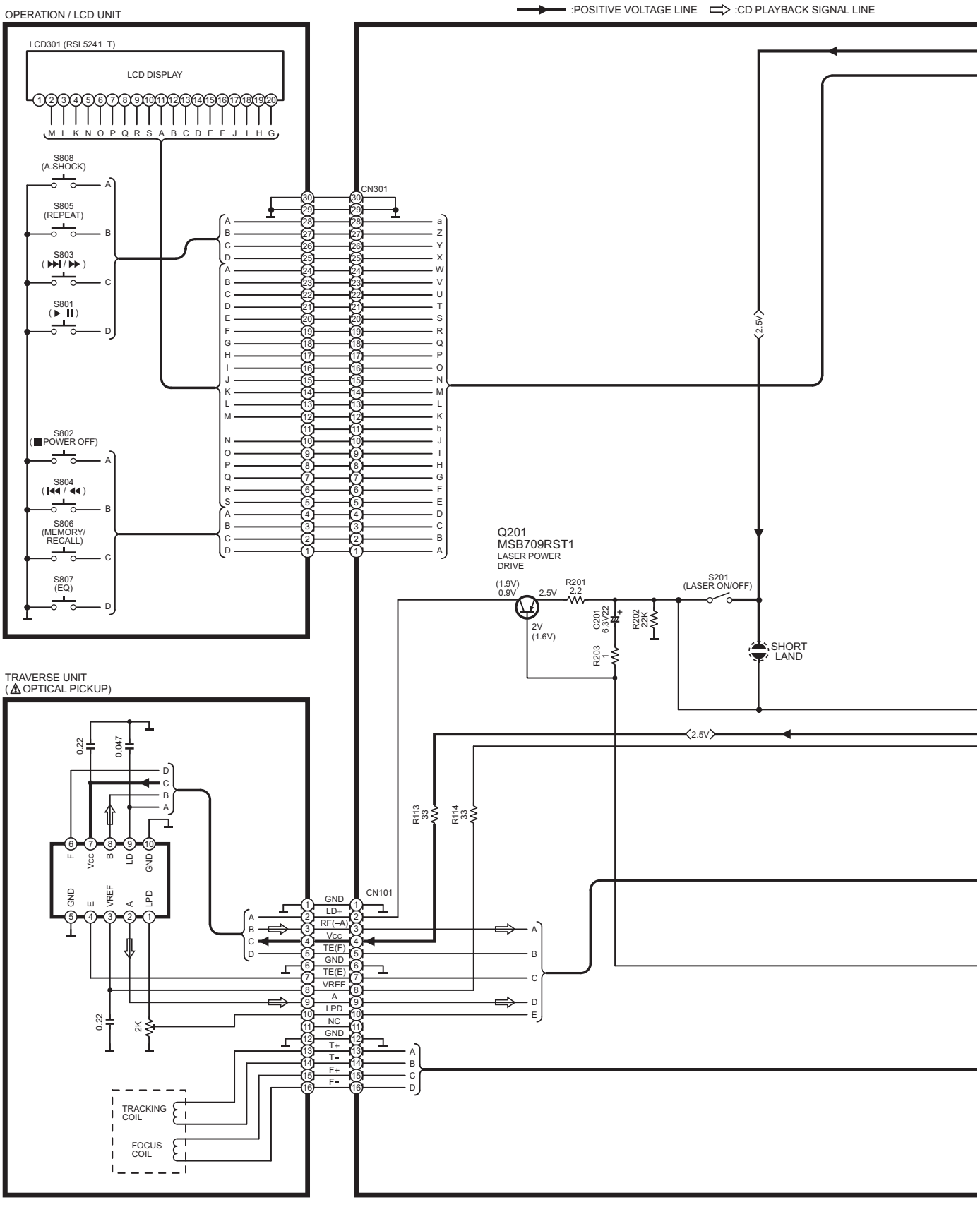


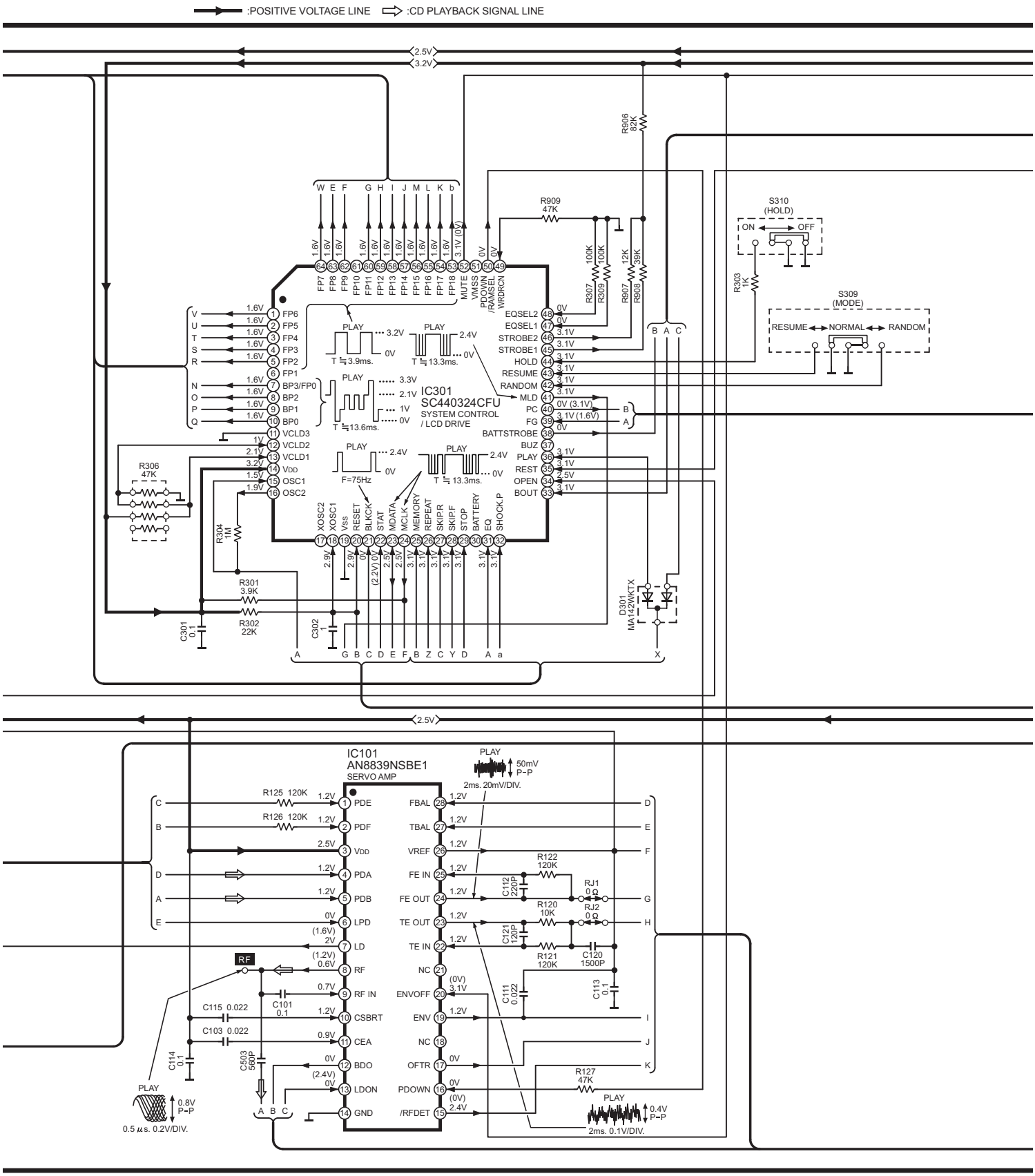
Note: This printed circuit board diagram may be modified at any time with the development of new technology.

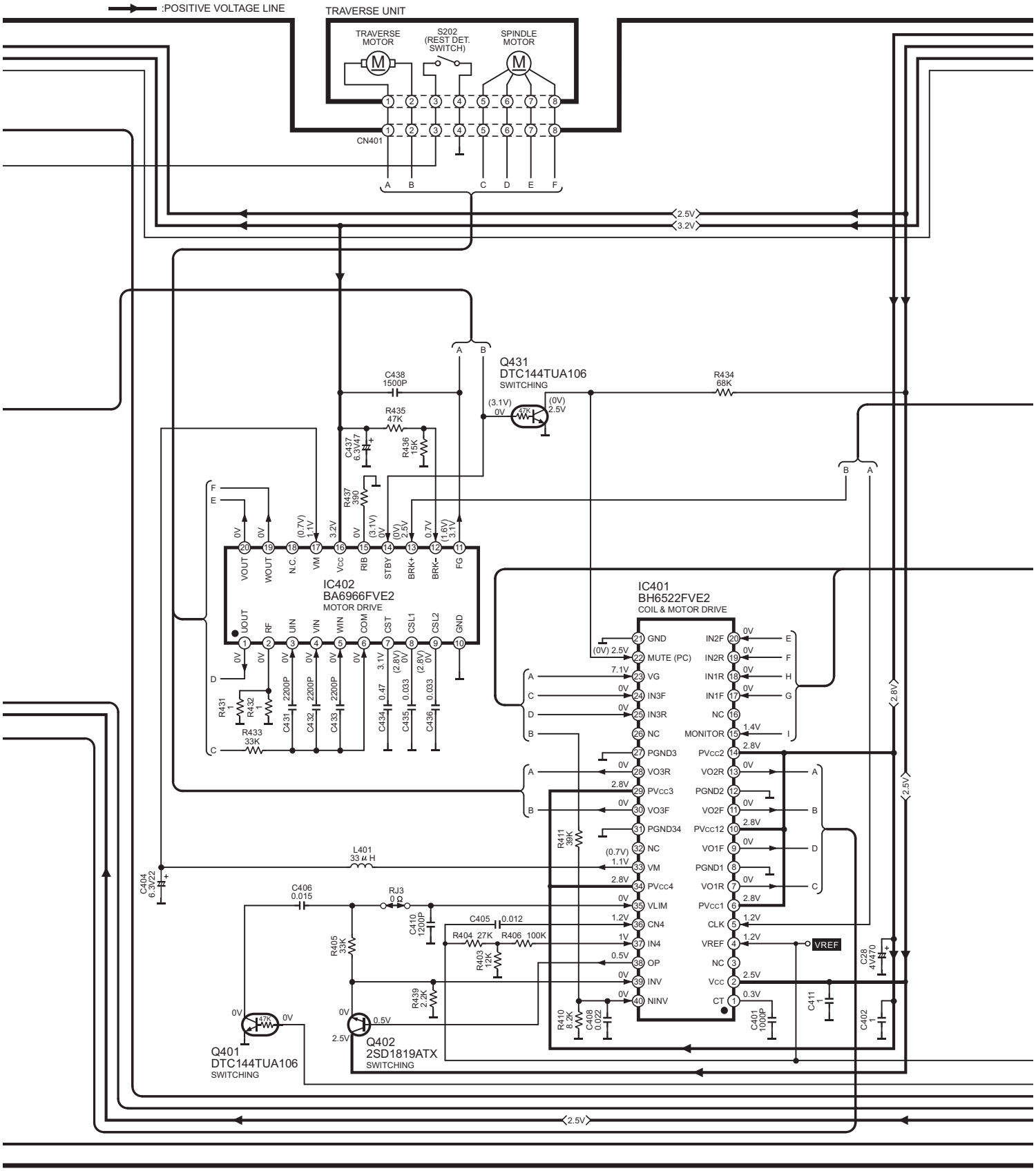


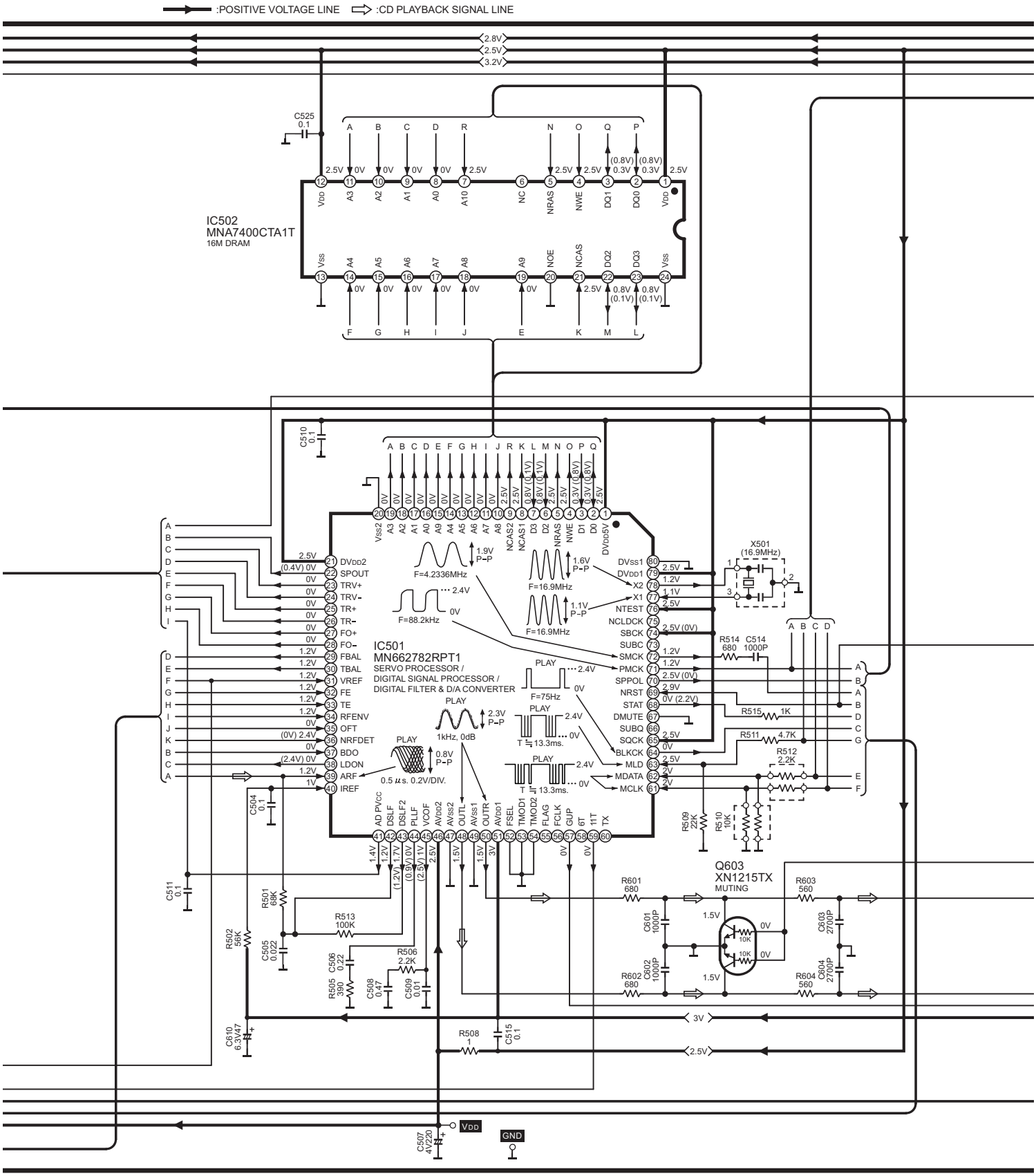
■ELECTRICAL PARTS LOCATION

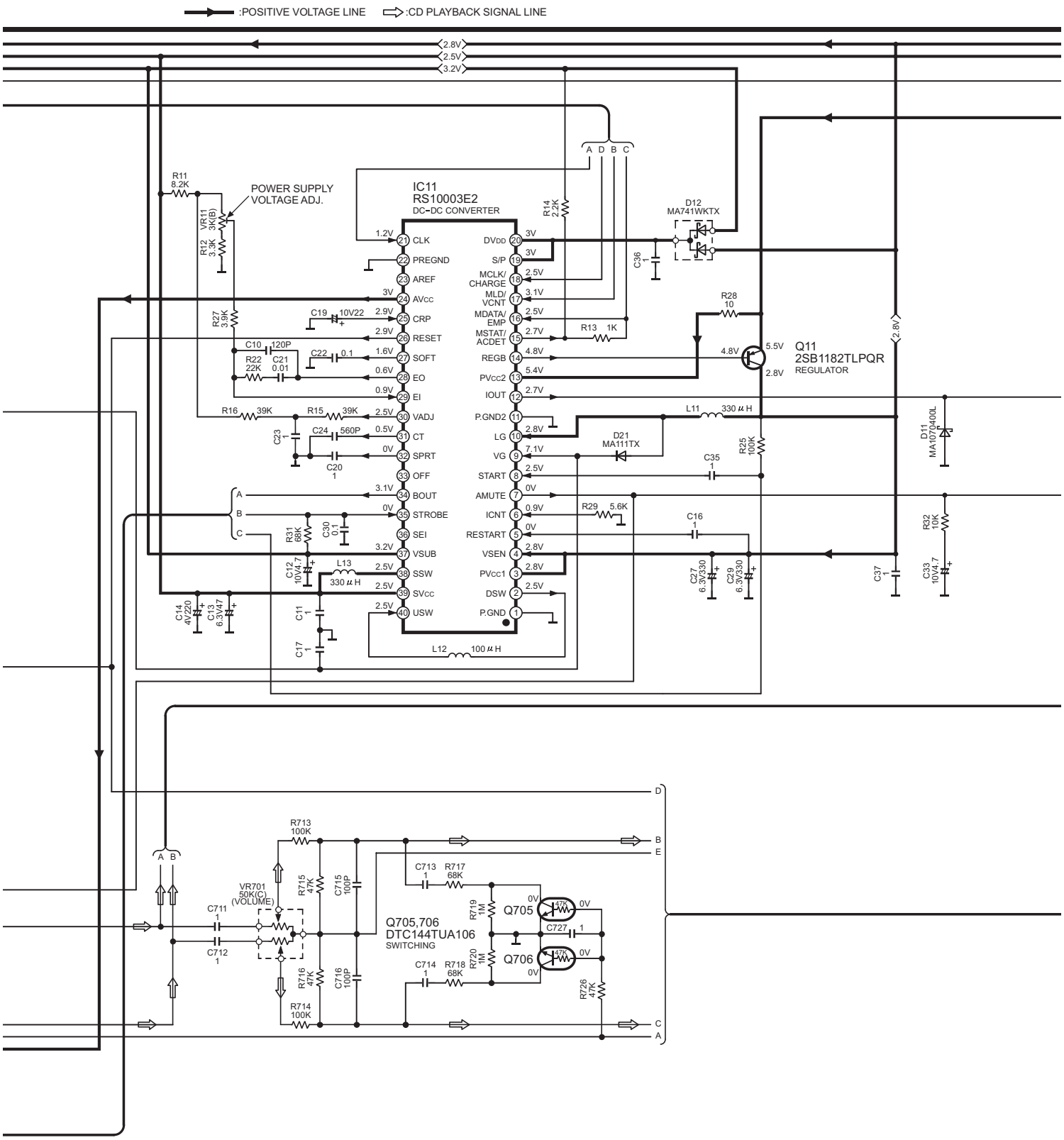
Ref. No.	Lo. No.	Ref. No.	Lo. No.	Ref. No.	Lo. No.	Ref. No.	Lo. No.
(SIDE: A)							
IC11	3E	JK11	3F	R707	8D	C410	7B
IC401	7B	JK601	4F	R708	7D	C411	8B
IC502	5D	R12	4E	R712	7C	C437	7B
IC701	7C	R15	3D	R719	8C	C506	5E
Q11	3E	R16	3D	RJ3	7B	C507	5E
Q401	7B	R22	3D	C10	3D	C508	5E
Q402	7A	R27	4D	C11	4D	C509	5E
Q602	7E	R28	3E	C13	5F	C511	5E
Q705	8C	R31	4D	C14	5E	C525	5D
Q901	7B	R203	3D	C19	3D	C603	7D
Q902	7B	R303	2C	C20	3D	C604	7D
D12	3E	R307	3C	C21	3D	C605	7E
D301	3C	R309	3C	C22	3D	C606	7D
D901	7B	R403	7A	C23	3D	C610	4E
ICP11	2E	R404	7A	C24	3D	C702	8D
VR11	3E	R405	7A	C27	2E	C703	8D
VR701	7E	R406	7A	C28	7C	C704	7D
L11	3E	R410	7A	C29	2D	C705	7D
L12	4E	R439	7A	C30	3D	C706	7D
L13	4D	R505	5E	C36	3E	C710	7D
L401	8A	R506	5E	C37	4E	C712	7D
X501	6D	R515	6E	C113	4D	C719	8C
S201	2F	R603	7D	C201	3E	C721	7C
S309	6E	R604	7D	C401	8B	C722	7C
S310	5F	R606	7E	C402	8B	C725	8D
CN101	3C	R701	8D	C404	7B	C726	8C
CN301	2D	R702	7D	C405	7A	C727	8C
CN401	4D	R705	8D	C406	7B		
CN701	6E	R706	7D	C408	7A		
(SIDE: B)							
IC101	3C	R127	3D	R716	8D	C301	2C
IC301	2D	R201	3B	R717	8D	C302	2C
IC402	7E	R202	3C	R718	7D	C431	8E
IC501	5B	R301	3B	R720	7D	C432	8E
Q201	3B	R302	2C	R726	7D	C433	8E
Q431	7E	R304	2C	R727	8C	C434	8E
Q601	7C	R306	3C	R906	8F	C435	8E
Q603	7C	R411	7F	R907	7F	C436	8E
Q701	7C	R431	8E	R908	7F	(C437)	7E
Q702	8C	R432	8E	R909	7F	C438	7E
Q706	7D	R433	8E	RJ1	4C	C503	4B
Q906	7E	R434	7E	RJ2	4C	C504	4B
(VR701)	7B	R435	7E	RJ701	4B	C505	5B
D11	3B	R436	7E	RJ902	7C	(C507)	5B
D21	3B	R437	7E	RJ903	7C	C510	5C
(X501)	6C	R501	5B	C12	3C	C514	6B
J11	2C	R502	4B	(C13)	5A	C515	4B
J12	2B	R508	5B	(C14)	5B	C601	6B
J13	2B	R509	6B	C15	3A	C602	6B
(S201)	2A	R510	6B	C16	4B	C607	4A
(JK11)	3A	R511	6B	C17	3B	C608	4A
(JK601)	4A	R512	6B	(C19)	3C	C609	4A
R11	4B	R513	5B	(C27)	2B	(C610)	4B
R13	3B	R514	6B	(C28)	7D	(C705)	7C
R14	3B	R601	6B	(C29)	2B	(C706)	7C
R25	4B	R602	5B	C33	4B	C707	6B
R29	3B	R605	7C	C35	4B	C711	7B
R32	4B	R607	4A	C101	3C	C713	8D
R113	3D	R608	4A	C103	3C	C714	7D
R114	3D	R609	7B	C111	4C	C715	8D
R120	4C	R703	8C	C112	4C	C716	8D
R121	4C	R704	7C	C114	3C	C724	7D
R122	4C	R713	8D	C115	3C		
R125	3D	R714	8D	C120	4C		
R126	3D	R715	8D	C121	4C		

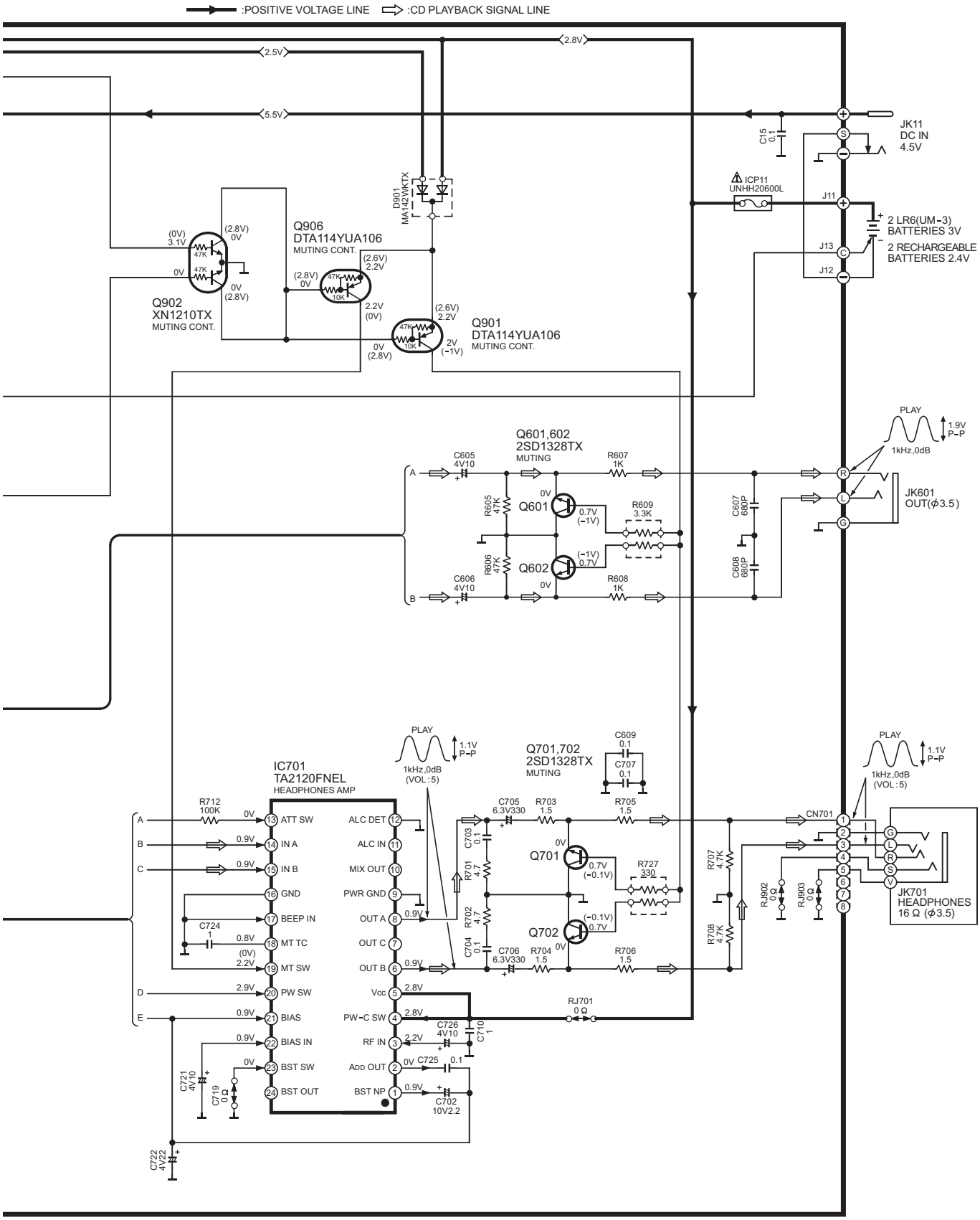

:POSITIVE VOLTAGE LINE
:CD PLAYBACK SIGNAL LINE
OPERATION / LCD UNIT
LCD301 (RSL5241−T)
LCD DISPLAY
S808 (A.SHOCK)
S805 (REPEAT)
S803
S801
S802 (POWER OFF)
S804
S806 (MEMORY/ RECALL)
S807 (EQ)
CN301
2.5V
Q201
MSB709RST1
LASER POWER DRIVE
(1.9V)
0.9V
2.5V
R201 2.2
2V
(1.6V)
C201 6.3V22
R202 22K
R203 1
S201 (LASER ON/OFF)
SHORT LAND
TRAVERSE UNIT
(OPTICAL PICKUP)
0.22
0.047
R113 33
R114 33
CN101
GND
LD+
RF(−A)
Vcc
TE(F)
GND
TE(E)
VREF
A
LPD
NC
GND
T+
T−
F+
F−
0.22
2K
TRACKING COIL
FOCUS COIL

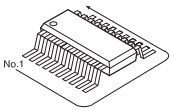

:POSITIVE VOLTAGE LINE
:CD PLAYBACK SIGNAL LINE
2.5V
3.2V
IC301
SC440324CFU
SYSTEM CONTROL
/ LCD DRIVE
IC101
AN8839NSBE1
SERVO AMP
S310
(HOLD)
ON
OFF
S309
(MODE)
RESUME
NORMAL
RANDOM
PLAY
F=75Hz
R906 82K
R909 47K
R307 100K
R309 100K
R907 12K
R908 39K
R303 1K
R306 47K
R304 1M
R301 3.9K
R302 22K
C301 0.1
C302 1
D301 MA142WKTX
R125 120K
R126 120K
R122 120K
R120 10K
R121 120K
C120 1500P
C112 220P
C121 120P
C111 0.022
C113 0.1
C101 0.1
C115 0.022
C103 0.022
C114 0.1
C503 560P
R127 47K
RJ1 0Ω
RJ2 0Ω
RF
50mV P-P
2ms. 20mV/DIV.
0.8V P-P
0.5 μs. 0.2V/DIV.
0.4V P-P
2ms. 0.1V/DIV.


:POSITIVE VOLTAGE LINE
TRAVERSE UNIT
TRAVERSE MOTOR
S202 (REST DET. SWITCH)
SPINDLE MOTOR
CN401
2.5V
3.2V
Q431
DTC144TUA106
SWITCHING
C438 1500P
R434 68K
R435 47K
C437 6.3V47
R436 15K
R437 390
IC402
BA6966FVE2
MOTOR DRIVE
VOUT
WOUT
N.C
VM
Vcc
RIB
STBY
BRK+
BRK-
FG
UOUT
RF
UIN
VIN
WIN
COM
CST
CSL1
CSL2
GND
R431 1
R432 1
R433 33K
C431 2200P
C432 2200P
C433 2200P
C434 0.47
C435 0.033
C436 0.033
IC401
BH6522FVE2
COIL & MOTOR DRIVE
GND
MUTE (PC)
VG
IN3F
IN3R
NC
PGND3
VO3R
PVcc3
VO3F
PGND34
NC
VM
PVcc4
VLIM
CN4
IN4
OP
INV
NINV
IN2F
IN2R
IN1R
IN1F
NC
MONITOR
PVcc2
VO2R
PGND2
VO2F
PVcc12
VO1F
PGND1
VO1R
PVcc1
CLK
VREF
NC
Vcc
CT
VREF
2.8V
L401 33 μH
C404 6.3V22
C406 0.015
RJ3 0Ω
C410 1200P
C405 0.012
R404 27K
R406 100K
R403 12K
R405 33K
R439 2.2K
R411 39K
R410 8.2K
C408 0.022
C401 1000P
C411 1
C402 1
C28 4V470
Q401
DTC144TUA106
SWITCHING
Q402
2SD1819ATX
SWITCHING


:POSITIVE VOLTAGE LINE
:CD PLAYBACK SIGNAL LINE
2.8V
2.5V
3.2V
IC502
MNA7400CTA1T
16M DRAM
IC501
MN662782RPT1
SERVO PROCESSOR /
DIGITAL SIGNAL PROCESSOR /
DIGITAL FILTER & D/A CONVERTER
Q603
XN1215TX
MUTING
X501
(16.9MHz)
F=4.2336MHz
F=16.9MHz
F=88.2kHz
F=75Hz
1kHz, 0dB
0.5 µs. 0.2V/DIV.
T = 13.3ms.
VDD
GND

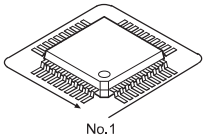

:POSITIVE VOLTAGE LINE
:CD PLAYBACK SIGNAL LINE
2.8V
2.5V
3.2V
IC11
RS10003E2
DC-DC CONVERTER
POWER SUPPLY
VOLTAGE ADJ.
R11 8.2K
VR11 3K(B)
R12 3.3K
R27 3.9K
R22 22K
C21 0.01
C10 120P
C19 10V22
C22 0.1
R16 39K
R15 39K
C23
C24 560P
C20 1
R31 68K
C30 0.1
C12 10V4.7
L13 330 μH
C14 4V220
C13 6.3V47
C11 1
C17 1
L12 100 μH
R14 2.2K
R13 1K
C36 1
D12 MA741WKTX
R28 10
Q11
2SB1182TLPQR
REGULATOR
5.5V
4.8V
2.8V
L11 330 μH
D21 MA111TX
R25 100K
C35 1
R29 5.6K
C16 1
C27 6.3V330
C29 6.3V330
C37 1
R32 10K
C33 10V4.7
D11 MA10P400L
1.2V CLK
PREGND
AREF
3V AVCC
2.9V CRP
2.9V RESET
1.6V SOFT
0.6V EO
0.9V EI
2.5V VADJ
0.5V CT
0V SPRT
OFF
3.1V BOUT
0V STROBE
SEI
3.2V VSUB
2.5V SSW
2.5V SVCC
2.5V USW
DVDD 3V
S/P 3V
MCLK/ CHARGE 2.5V
MLD/ VCNT 3.1V
MDATA/ EMP 2.5V
MSTAT/ ACDET 2.7V
REGB 4.8V
PVCC2 5.4V
IOUT 2.7V
P.GND2
LG 2.8V
VG 7.1V
START 2.5V
AMUTE 0V
ICNT 0.9V
RESTART 0V
VSEN 2.8V
PVCC1 2.8V
DSW 2.5V
P.GND
A D B C
A B C
D
B
E
C
A
A B
R713 100K
R715 47K
C715 100P
R716 47K
C716 100P
R714 100K
VR701 50K(C) (VOLUME)
C711 1
C712 1
C713 1
R717 68K
C714 1
R718 68K
R719 1M
R720 1M
Q705
Q706
47K
C727 1
R726 47K
Q705,706
DTC144TUA106
SWITCHING
0V


:POSITIVE VOLTAGE LINE
:CD PLAYBACK SIGNAL LINE
2.8V
2.5V
5.5V
JK11
DC IN
4.5V
C15
0.1
ICP11
UNHH20600L
J11
J13
J12
2 LR6(UM-3)
BATTERIES 3V
2 RECHARGEABLE
BATTERIES 2.4V
D901
MA142WKTX
Q906
DTA114YUA106
MUTING CONT.
Q902
XN1210TX
MUTING CONT.
Q901
DTA114YUA106
MUTING CONT.
Q601,602
2SD1328TX
MUTING
C605
4V10
C606
4V10
R607
1K
R608
1K
R605
47K
R606
47K
Q601
Q602
R609
3.3K
C607
680P
C608
680P
JK601
OUT(φ3.5)
PLAY
1.9V
P-P
1kHz,0dB
IC701
TA2120FNEL
HEADPHONES AMP
ATT SW
IN A
IN B
GND
BEEP IN
MT TC
MT SW
PW SW
BIAS
BIAS IN
BST SW
BST OUT
ALC DET
ALC IN
MIX OUT
PWR GND
OUT A
OUT C
OUT B
Vcc
PW-C SW
RF IN
ADD OUT
BST NP
R712
100K
C724
1
C721
4V10
C719
0Ω
C722
4V22
C726
4V10
C710
1
C725
0.1
C702
10V2.2
RJ701
0Ω
Q701,702
2SD1328TX
MUTING
C609
0.1
C707
0.1
C705
6.3V330
C706
6.3V330
R703
1.5
R704
1.5
R705
1.5
R706
1.5
Q701
Q702
R727
330
C703
0.1
C704
0.1
R701
4.7
R702
4.7
PLAY
1.1V
P-P
1kHz,0dB
(VOL:5)
CN701
JK701
HEADPHONES
16Ω (φ3.5)
R707
4.7K
R708
4.7K
RJ902
0Ω
RJ903
0Ω

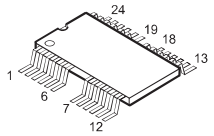


AN8839NSBE1	28PIN
RS10003E2	40PIN
BH6522FVE2	40PIN
BA6966FVE2	20PIN
TA2120FNEL	24PIN

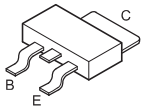
SC440324CFU	64PIN
MN662782RPT1	80PIN

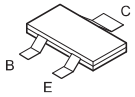


MNA7400CTA1T



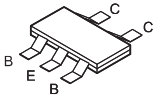
2SB1182TLPQR



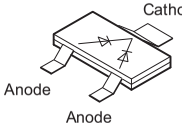


MSB709RST1
2SD1328TX
2SD1819ATX
DTA114YUA106
DTC144TUA106

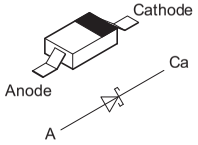
XN1210TX
XN1215TX



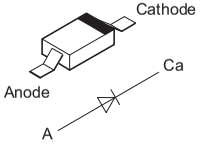
MA142WKTX



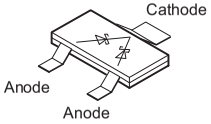
MA1070400L



MA111TX



MA741WKTX



Pin No.	Mark	I/O Division	Function
15	/RFDET	O	RF detection signal output (L: detection)
16	PDOWN	O	Reduced voltage detection signal input
17	OFTR	O	Off-track signal output (H: off-track)
18	NC	---	Unused and open
19	ENV	O	RF envelop signal output
20	ENVOFF	I	Envelop control input
21	NC	---	Unused and open
22	TE IN	I	Tracking error amplifier input
23	TE OUT	O	Tracking error amplifier output
24	FE OUT	O	Focus error amplifier output
25	FE IN	I	Focus error amplifier input
26	VREF	O	Reference voltage output
27	TBAL	I	Tracking balance signal input
28	FBAL	I	Focus balance signal input

14.2. IC301(SC440324CFU):SYSTEM CONTROL / LCD DRIVE

Pin No.	Mark	I/O Division	Function
1 ⋮ 5	FP6 ⋮ FP2	O	LCD segment signal output
6	FP1	---	Unused and open
7 ⋮ 10	BP3 ⋮ BP0	O	LCD segment signal output
11	VLCD3	---	Unused and connected to ground
12	VLCD2	I	Power supply (LCD drive bias)
13	VLCD1		
14	VDD	I	Power supply

Pin No.	Mark	I/O Division	Function
15	OSC1	I	When MSEL from IC501 is H : Crystal oscillator 1/2 frequency-dividedclock signal input (I SMCK = 8.4672 MHz) When MSEL from IC501 is L : Crystal oscillator 1/4 frequency-divided clocksignal input (I SMCK = 4.2336 MHz)
16	OSC2	O	Crystal oscillator1/ 2frequency- divided clock signal output
17	XOSC2	---	Unused and open
18	XOSC1	I	Connected to reset detection
19	VSS	---	Ground connection
20	RESET	I	Reset detection input
21	BLKCK	I	Block clock input
22	STAT	I	IC501 data input
23	MDATA	I/O	Command data input/ output
24	MCLK	O	Output of serial command clock to peripheral IC´s
25	MEMORY	I	MEMORY key input
26	REPEAT	I	REPEAT key input
27	SKIP.R	I	SKIP.R key input
28	SKIP.F	I	SKIP.F key input
29	STOP	I	STOP key input
30	BATTERY	---	Unused and open
31	EQ	I	EQ key input
32	SHOCK.P	I	SHOCK.P key input
33	BOUT	I	Input of battery charging voltage measurement from IC11 (L: end)
34	OPEN	I	Cover open detection input
35	REST	I	REST switch input
36	PLAY	I	PLAY key input
37	BUZ	---	Unused and open
38	BATT STROBE	O	Output for measurement of battery charging voltage (measured by Hi-Z)

Pin No.	Mark	I/O Division	Function
39	FG	I	Spindle motor revolution cycle signal input
40	PC	O	Hard mute output
41	MLD	O	Output of serial command latch to peripheral IC´s
42	RANDOM	I	RANDOM switch input
43	RESUME	I	RESUME switch input
44	HOLD	I	HOLD switch input
45	STROBE1	O	STROBE1 output
46	STROBE2	O	STROBE2 output
47	EQSEL1	I	EQ selection input1
48	EQSEL2	I	EQ selection input2
49	WRDRCN	I	Remote Control input
50	PDOWN / RAMSEL	I/O	Headphones power OFF output/ RAM selection input
51	VMSS	---	Unused and open
52	MUTE	O	Hard mute output
53 ¦ 60	FP18 ¦ FP11	O	LCD segment signal output
61	FP10	---	Unused and open
62 ¦ 64	FP9 ¦ FP7	O	LCD segment signal output

14.3. IC401(BH6522FVE2):COIL & MOTOR DRIVE

Pin No.	Mark	I/O Division	Function
1	CT	O	Triangular wave output (connected to ground via a capacitor)
2	VCC	I	Power supply
3	NC	---	Unused and open
4	VREF	I	Reference voltage input
5	CLK	I	External clock input
6	PVCC1	I	Power supply
7	V01R	O	Focus coil drive signal output
8	PGND1	---	Ground connection
9	V01F	O	Focus coil drive signal output
10	PVCC12	I	Power supply
11	V02F	O	Tracking coil drive signal output
12	PGND2	---	Ground connection
13	V02R	O	Tracking coil drive signal output
14	PVCC2	I	Power supply
15	MONITOR	I	A/D reference voltage monitor
16	NC	---	Unused and open
17	IN1F	I	Focus coil drive signal input
18	IN1R	I	Focus coil drive signal input
19	IN2R	I	Tracking coil drive signal input
20	IN2F	I	Tracking coil drive signal input
21	GND	---	Ground connection
22	MUTE(PC)	I	Hard mute input
23	VG	I	Power supply
24	IN3F	I	Traverse motor drive signal input
25	IN3R	I	Traverse motor drive signal input
26	NC	---	Unused and open
27	PGND3	---	Ground connection
28	V03R	O	Traverse motor drive signal output

Pin No.	Mark	I/O Division	Function
29	PVCC3	I	Power supply
30	V03F	O	Traverse motor drive signal output
31	PGND34	---	Ground connection
32	NC	---	Unused and open
33	VM	O	For output of spindle motor output power supply
34	PVCC4	I	Power supply
35	VLIM	I	Spindle motor gain control signal input
36	CN4	I	Channel 4 filter (connected to VREF via a capacitor)
37	IN4	I	Reference voltage input
38	OP	O	Spindle motor control signal amplifier output
39	INV	I	Spindle motor control signal reverse input
40	NINV	I	Spindle motor drive input

14.4. IC402(BA6966FVE2):MOTOR DRIVE

Pin No.	Mark	I/O Division	Function
1	UOUT	O	Spindle motor drive signal output
2	RF	---	Output current detection (connected to ground via a resistance)
3	UIN	I	Rotor position detection input
4	VIN		
5	WIN		
6	COM	I	Motor coil midpoint input
7	CST	---	Starting oscillation capacitor connection
8	CSL1	---	Slope capacitor connections
9	CSL2		
10	GND	---	Ground connection
11	FG	O	Spindle motor revolution cycle signal output
12	BRK -	I	Brake signal input
13	BRK+		
14	STBY	I	Standby input

Pin No.	Mark	I/O Division	Function
15	RIB	---	Output TR setting resistor connection
16	VCC	I	Power supply
17	VM	I	Input of spindle motor output power supply
18	NC	---	Unused and open
19	WOUT	O	Spindle motor drive signal output
20	VOUT		

14.5. IC11(RS10003E2):DC/DC CONVERTER

Pin No.	Mark	I/O Division	Function
1	P.GND	---	Ground connection
2	DSW	O	DC/DC converter coil drive
3	PVCC1	I	Power supply
4	VSEN	I	Empty detection input (connected to power supply)
5	RESTART	I	DC/DC converter drive
6	ICNT	I	Setting of charging current
7	AMUTE	O	Muting signal output
8	START	I	Starting of DC/DC converter
9	VG	I	Power supply
10	LG	I	Coil drive for VG voltage increase (connected to power supply)
11	P.GND2	---	Ground connection
12	IOUT	O	Charging signal output and charging feedback
13	PVCC2	I	Power supply
14	REGB	O	Regulator drive signal output
15	MSTAT/ ACDET	O	DC jack detection output
16	MDATA/ EMP	I	Power drop detection input
17	MLD/ VCNT	I	Regulator voltage switching input

Pin No.	Mark	I/O Division	Function
18	MCLK/ CHARGE	I	Charging ON/OFF
19	S/P	I	Serial/parallel switching (connected to power supply)
20	DVDD	I	Power supply
21	CLK	I	DC/DC converter external clock input
22	PREGND	---	Ground connection
23	AREF	---	Unused and open
24	AVCC	O	Ripple filter output
25	CRP	I	Ripple filter smoothing capacitor connection
26	RESET	O	Reset detection output
27	SOFT	O	Soft start setting (connected to ground via a capacitor)
28	EO	O	DC/DC converter error amplifier output
29	EI	I	DC/DC converter error amplifier input
30	VADJ	O	Output for varying DC/DC converter output
31	CT	O	Triangular wave output (connected to ground via a capacitor)
32	SPRT	O	For setting of constants at power OFF (connected to ground via a capacitor)
33	OFF	---	Unused and open
34	BOUT	O	Amplifier output
35	STROBE	I	Strobe input
36	SEI	---	Unused and open
37	VSUB	I	Power supply
38	SSW		
39	SVCC		
40	USW	I	DC/DC converter coil drive

14.6. IC501(MN662782RPT1):SERVO PROCESSOR / DIGITAL SIGNAL PROCESSOR / DIGITAL FILTER & D/A CONVERTER

Pin No.	Mark	I/O Division	Function
1	DVDD	---	Power supply for DRAM
2	D0	I/O	Data input/output for DRAM
3	D1		
4	NWE	O	Write enable output for DRAM
5	NRAS	O	RAS control signal output for DRAM
6	D2	I/O	Data 2/3 input/output for DRAM
7	D3		
8	NCAS1	O	CAS control 1 signal output for DRAM
9	NCAS2	---	CAS control 2 signal output for DRAM
10 ¦ 14	A8 ¦ A4	O	Addresses 8-4 output for DRAM
15	A9	O	Address 9 output for DRAM
16 ¦ 19	A0 ¦ A3	O	Addresses 0-3 output for DRAM
20	VSS2	---	Ground connection for digital circuits
21	DVDD2	---	Power supply for digital circuits
22	SPOUT	O	Spindle motor drive output
23	TRV+	O	Traverse motor drive output, positive polarity
24	TRV -	O	Traverse motor drive output, negative polarity
25	TR+	O	Tracking coil drive output, positive polarity
26	TR -	O	Tracking coil drive output, negative polarity
27	FO+	O	Focus coil drive output, positive polarity
28	FO -	O	Focus coil drive output, negative polarity
29	FBAL	O	Focus balance adjustment output
30	TBAL	O	Tracking balance adjustment output
31	VREF	I	D/A output reference voltage input

			voltage input

Pin No.	Mark	I/O Division	Function
32	FE	I	Focus error signal input (analog input)
33	TE	I	Tracking error signal input (analog input)
34	RFENV	I	RF envelope signal input (analog input)
35	OFT	I	Off-track signal input (H: off -track)
36	NRFDET	I	RF detection signal input (L : detection)
37	BDO	I	Dropout signal input (H: dropout)
38	LDON	O	Laser ON signal output (H: ON)
39	ARF	I	RF signal input
40	IREF	I	Reference current input
41	AD PVCC	I	A/D reference voltage input
42	DSLF	O	Loop filter output for DSL
43	DSLF2	O	Unbalance current correction output for DSL
44	PLLF	O	Loop filter output for PLL
45	VCOF	O	Loop filter output for jitter-free VCO
46	AVDD2	---	Power supply for analog circuits
47	AVSS2	---	Ground connection for analog circuits
48	OUTL	O	Left channel audio signal output
49	AVSS1	---	Ground connection for analog circuits (for audio output)
50	OUTR	O	Right channel audio signal output
51	AVDD1	---	Power supply for analog circuits
52	FSEL	I	Noise filter ON/OFF switching input (L: ON)
53	TMOD1	I	Terminal mode switching input 1 (L: normal)
54	TMOD2	I	Terminal mode switching input 2 (L: normal)

Pin No.	Mark	I/O Division	Function
55	FLAG	---	Unused and open
56	FCLK	---	Unused and open
57	GUP	O	Gain control output for during XBS operation (when ON: increased 6 dB)
58	6T	---	Unused and open
59	11T	O	Spindle motor gain control signal output
60	TX	---	Unused and open
61	MCLK	I	Microprocessor command clock signal input (detected at leading edge)
62	MDATA	I	Microprocessor command data signal input
63	MLD	I	Microprocessor command control signal input (L: load)
64	BLKCK	O	Sub-code block clock signal output (I = 75 Hz)
65	SQCK	I	External clock input for sub -code Q resistor
66	SUBQ	---	Unused and open
67	DMUTE	---	Mute input (H: mute) (unused and connected to ground)
68	STAT	O	Status signal output
69	NRST	I	Reset signal input (H: reset)
70	SPPOL	O	Spindle motor drive signal output
71	PMCK	O	Clock signal output (I = 88.2 Hz)
72	SMCK	O	System clock signal output (I = 4.2336 MHz)
73	SUBC	---	Unused and open
74	SBCK	I	Clock input for sub-code output
75	NCLDCK	---	Unused and open
76	NTEST	I	Test terminal (normal: H)
77	X1	I	Crystal oscillator circuit input (I = 16.9344 MHz)

Pin No.	Mark	I/O Division	Function
78	X2	O	Crystal oscillator circuit output (I = 16.9344 MHz)
79	DVDD1	---	Power supply for digital circuits
80	DVSS1	---	Ground connection for digital circuits

15. Replacement Parts List

Notes:

***Important safety notice:**
***Components identified by ⚠ ; ; have special characteristics important for safety.**
***Furthermore, special parts which have purposes of fire-retardant (resistors), high-quality sound (capacitors), low-noise (resistors), etc. are used.**
***When replacing any of components, be sure to use only manufacturerís specified parts shown in the parts list.**
***The parenthesized indications in the Remarks columns specify the areas. (Refer to the cover page for area.)**
Parts without these indications can be used for all areas.
***Warning: This product uses a laser diode. Refer to caution statements.**
***Capacity values are in microfarads (μ F) unless specified otherwise, P=Pico-farads (pF), F=Farads (F)**
***Resistance values are in ohms, unless specified otherwise, 1K= 1,000 (OHM), 1M=1,000k (OHM)**
***"<IA>--<ID>" marks in Remarks indicate languages of instruction manuals.**
[<IA>: English, <IB>: English, Spanish, Swedish, Garman, Italian, French, <IC>:Nether lands, Danish, Russian, Polish, Czech <ID>: English, Chinese]
***The marking (RTL) indicates that the Retention Time is limited for this item. After the discontinuation of this assembly in production, the item will continue to be available for a specific period of time. The retention period of availability is dependant on the type of**

assembly, and in accordance with the laws governing part and product retention. After the end of this period, the assembly will no longer be available.

ACHTUNG:
Die lasereinheit nicht zerlegen.
Die lasereinheit darf nur gegen einc vom hersteller spezifizierte einheit ausgetauscht werden.

Ref. No.	Part No.	Part Name & Description	Pcs	Remarks
1	RKK0130-K	BATT.COVER	1	
2	RYF0533-H	CD COVER	1	
3	RFKJLSW850EB	BOTTOM CABINET ASS'Y	1	
3-1	RKA0063-K	FOOT	2	
4	RGV0173-D	KNOB,HOLD	1	
5	RGW0289-K	KNOB,VOL	1	
6	RHE5079YA	SCREW	1	
7	RJC30031	BATT.TERMINAL(+)	1	
8	RJC70028	BATT.TERMINAL(-)	1	
9	RJH5303	BATT.CASE CONNECT.TERMINA	1	
10	RKS0313-H	BOTTOM CABINET	1	
11	RMG0516-H	COVER(A)	1	
12	RMG0517-H	COVER(B)	1	
13	RML0541	LEVER	1	
14	RML0558	LEVER,VOL	1	
15	RMX0122	WATER PROF RING	2	
16	RXQ0646	JACK ASS'Y	1	
17	RAE0220Z	TRAVERSE DECK	1	⚠
17-1	RMG0503-K	FLOATING GUM	3	
18	RGV0251-H	KNOB,MODE	1	
19	RMK0427	MID CHASSIS	1	
20	XTN17+6GFZ	SCREW	5	
21	RGN1738-K	NAME PLATE	1	(EB)
21	RGN1737-K	NAME PLATE	1	(EG)
21	RGN1739-K	NAME PLATE	1	(GC)
21	RGN1740-K	NAME PLATE	1	(GN)
22	RMF0280	SHEET	2	
23	XQN14+BG4FC	SCREW	2	
24	XQN14+BG3FC	SCREW	12	
25	RGU1771-H	OPERATION KNOB(A)	1	
26	RGU1772-H	OPERATION KNOB(B)	1	
27	RSQ0061	ZEBRA RUBBER	1	
28	RXA0177	STOPPER ANGLE ASS'Y	1	
29	RXA0176	SW PCB	1	(S801-808)
31	RHD20039-K	SCREW	2	
32	RMG0518-D	LING	1	
A1	RFEA403B-S	AC ADAPTOR	1	(EB) ⚠
A1	RFEA401E-3S	AC ADAPTOR	1	(EG) ⚠

Ref. No.	Part No.	Part Name & Description	Pcs	Remarks
A1	RFEA403Z-S	AC ADAPTOR	1	(GC) ⚠
A1	RFEA403A-S	AC ADAPTOR	1	(GN) ⚠
A2	RFEV708P-HS	STEREO HEADPHONE	1	
A3	RGQT0006-K	HAND GRIP	1	
A4	RQA0117	WARRANTY CARD	1	(EB,EG)
A4	RQX7433ZA	WARRANTY CARD	1	(GN)
A5	RQCB0169	SERVICE CENTER LIST	1	
A6	RQT5082-B	INSTRUCTION MANUAL	1	(EB GN)<IA>
A6	RQT5080-E	INSTRUCTION MANUAL	1	(EG)<IB>
A6	RQT5081-H	INSTRUCTION MANUAL	1	(EG)<IC>
A6	RQT5083-G	INSTRUCTION MANUAL	1	(GC)<ID>
A7	RFKFP3GAVABA	RECHARGEABLE BATT.ASS'Y	1	
A7-1	RXQ0449	BATTERY CASE	1	
A8	SJP5213-2	PLUG ADAPTOR	1	(GC) ⚠
C10	ECUV1H121KCV	50V 120P	1	
C11	ECUVNA105ZFV	10V 1U	1	
C12	ECST1AY475RR	10V 4.7U	1	
C13	RCE0JSL470IX	6.3V 47U	1	
C14	RCE0GKS221IG	4V 220U	1	
C15	ECUZNC104ZFV	16V 0.1U	1	
C16,17	ECUVNA105ZFV	10V 1U	2	
C19	ECEA1AKS220	10V 22U	1	
C20	ECUVNA105ZFV	10V 1U	1	
C21	ECUVNH103KBV	50V 0.01U	1	
C22	ECUZNC104ZFV	16V 0.1U	1	
C23	ECUVNA105ZFV	10V 1U	1	
C24	ECUV1H561KBV	50V 560P	1	
C27	ECEA0JKS331	6.3V 330U	1	
C28	RCE0GKS471IG	4V 470U	1	
C29	ECEA0JKS331	6.3V 330U	1	
C30	ECUVNC104KBV	16V 0.1U	1	
C33	ECST1AY475RR	10V 4.7U	1	
C35	ECUVNJ105KBV	63V 1U	1	
C36,37	ECUVNA105ZFV	10V 1U	2	
C101	ECUVNC104KBV	16V 0.1U	1	
C103	ECUVNE223KBV	25V 0.022U	1	
C111	ECUVNE223KBV	25V 0.022U	1	
C112	ECUV1H221KBV	50V 220P	1	
C113	ECUZNC104ZFV	16V 0.1U	1	
C114	ECUZNC104ZFV	16V 0.1U	1	
C115	ECUVNE223KBV	25V 0.022U	1	
C120	ECUV1H152KBV	50V 1500P	1	
C121	ECUV1H121KCV	50V 120P	1	
C201	RCST0JY226RG	6.3 22U	1	
C301	ECUZNC104ZFV	16V 0.1U	1	
C302	ECUVNA105ZFV	10V 1U	1	
C401	ECUV1H102KBV	50V 1000P	1	
C402	ECUVNA105ZFV	10V 1U	1	
C404	RCST0JY226RG	6.3 22U	1	
C405	ECUV1E123KBV	25V 0.012U	1	
C406	ECUVNE153KBV	25V 0.015U	1	

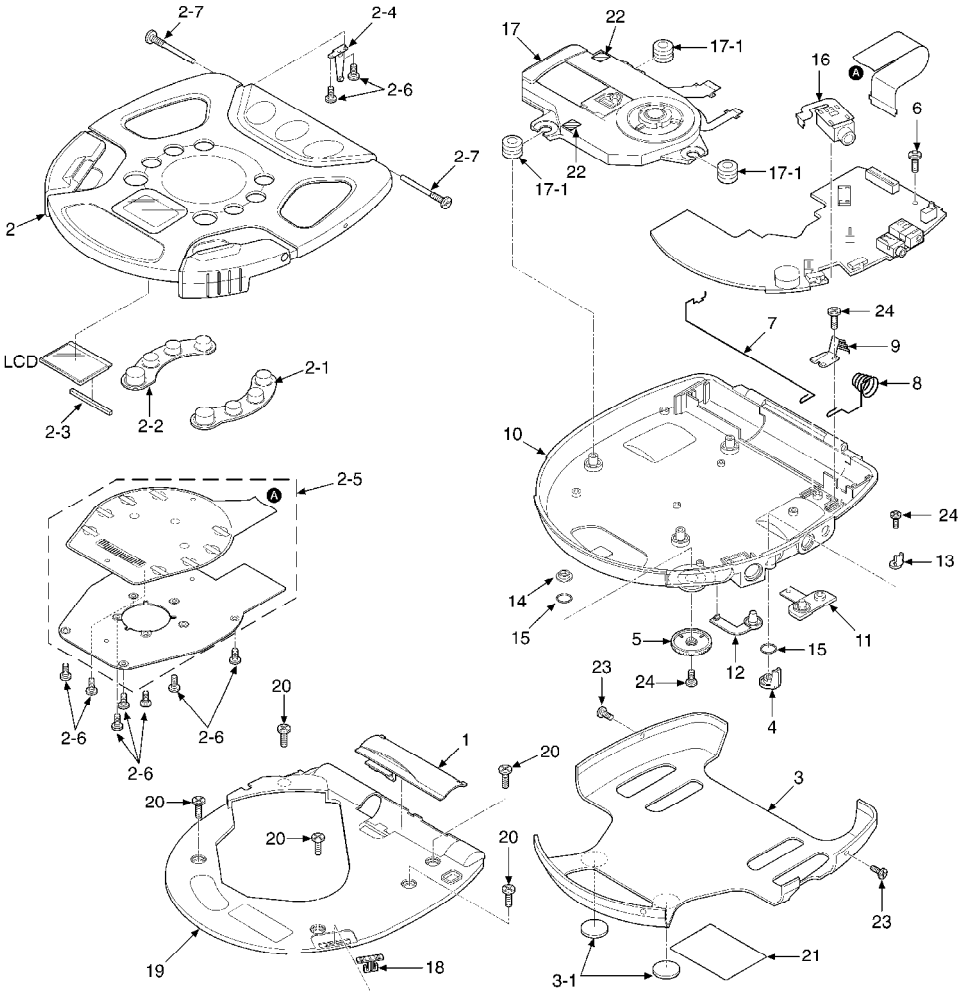
Ref. No.	Part No.	Part Name & Description	Pcs	Remarks
C408	ECUVNE223KBV	25V 0.022U	1	
C410	ECUV1H122KBV	50V 1200P	1	
C411	ECUVNA105ZFV	10V 1U	1	
C431-33	ECUV1H222KBV	50V 2200P	3	
C434	ECUV0J474KBV	6.3V 0.47U	1	
C435,36	ECUV1C333KBV	16V 0.033U	2	
C437	ECEA0JKS470	6.3V 47U	1	
C438	ECUV1H152KBV	50V 1500P	1	
C503	ECUV1H561KBV	50V 560P	1	
C504	ECUZNC104ZFV	16V 0.1U	1	
C505	ECUVNE223KBV	25V 0.022U	1	
C506	ECUVNA224KBV	10V 0.22U	1	
C507	RCE0GKS221IG	4V 220U	1	
C508	ECUV0J474KBV	6.3V 0.47U	1	
C509	ECUVNH103KBV	50V 0.01U	1	
C510,11	ECUZNC104ZFV	16V 0.1U	2	
C514	ECUV1H102KBV	50V 1000P	1	
C515	ECUZNC104ZFV	16V 0.1U	1	
C525	ECUZNC104ZFV	16V 0.1U	1	
C601,02	ECUV1H102KBV	50V 1000P	2	
C603,04	ECUV1H272KBV	50V 2700P	2	
C605,06	ECST0GY106RR	4V 10U	2	
C607,08	ECUV1H681KBV	50V 680U	2	
C609	ECUZNC104ZFV	16V 0.1U	1	
C610	ECEA0JKS470	6.3V 47U	1	
C702	ECST1AY225RR	10V 2.2U	1	
C703,04	ECUVNC104KBV	16V 0.1U	2	
C705,06	ECA0JAD331XI	6.3V 330U	2	
C707-09	ECUZNC104ZFV	16V 0.1U	3	
C710	ECUVNA105ZFV	10V 1U	1	
C711-14	ECUVNJ105KBV	63V 1U	4	
C715,16	ECUV1H101KCV	50V 100P	2	
C719	ERJ3GEY0R00V	CHIP JUMPER	1	
C721	ECST0GY106RR	4V 10U	1	
C722	ECST0GY226RR	4V 22U	1	
C724	ECUVNA105ZFV	10V 1U	1	
C725	ECUZNC104ZFV	16V 0.1U	1	
C726	ECST0GY106RR	4V 10U	1	
C727	ECUVNJ105KBV	63V 1U	1	
CN101	RJS2A4616T	CONECTOR	1	
CN301	RJS2A6130T	FPC CONECTOR	1	
CN401	RJS2A6108T	CONECTOR	1	
CN701	RJS2A6108T	CONECTOR	1	
D11	MA1070400L	DIODE	1	
D12	MA741WKTX	DIODE	1	
D21	MA111TX	DIODE	1	
D301	MA142WKTX	DIODE	1	
D901	MA142WKTX	DIODE	1	
IC11	RS10003E2	IC	1	
IC101	AN8839NSBE1	IC	1	

Ref. No.	Part No.	Part Name & Description	Pcs	Remarks
IC301	SC440324CFU	IC	1	
IC401	BH6522FV	IC	1	
IC402	BA6966FV	IC	1	
IC501	MN662782RPT1	IC	1	
IC502	MNA7400CTA1T	IC	1	
IC701	TA2120FNEL	IC	1	
ICP11	UNHH20600L	ICP	1	⚠
JK11	RJJ43K09-C	JACK,DC IN	1	
JK601	RJJD3S5ZB-C	JACK,AUDIO OUT	1	
L11	RLQU331KT-W	COIL	1	
L12	RLQS101KT1-T	COIL	1	
L13	RLQU331KT-W	COIL	1	
L401	RLQS330KT1-T	COIL	1	
LCD301	RSL5241-T	LCD	1	
P1	RPK1277	PACKING CASE	1	
P2	RPQ0856	PAD	1	
P3	RPQ0865	SPACER	1	(EB)
P3	RPQ0864	SPACER	1	(EG,GN)
P4	RPQ0867	PAD	1	
P5	RPQ0900	SPACER	1	
P6	RPF0111	PROTECTION BAG(UNIT)	1	
P7	RPF0046	PROTECTION BAG(F.B.)	1	(EG)
PCB1	REP2863A-M	PCB ASS'Y	1	(RTL)
Q11	2SB1182TLPQR	TRANSISTOR	1	
Q201	MSB709RST1	TRANSISTOR	1	
Q401	DTC144TUA106	TRANSISTOR	1	
Q402	2SD1819ATX	TRANSISTOR	1	
Q431	DTC144TUA106	TRANSISTOR	1	
Q601,02	2SD1328QRSTX	TRANSISTOR	2	
Q603	XN1215TX	TRANSISTOR	1	
Q701,02	2SD1328QRSTX	TRANSISTOR	2	
Q705,06	DTC144TUA106	TRANSISTOR	2	
Q901	DTA114YUA106	TRANSISTOR	1	
Q902	XN1210TX	TRANSISTOR	1	
Q906	DTA114YUA106	TRANSISTOR	1	
R11	ERJ3GEYJ822V	1/16W 8.2K	1	
R12	ERJ3GEYJ332V	1/16W 3.3K	1	
R13	ERJ3GEYJ102Z	1/16W 1K	1	
R14	ERJ3GEYJ222V	1/16W 2.2K	1	
R15,16	ERJ3GEYJ393V	1/16W 39K	2	
R22	ERJ3GEYJ223V	1/16W 22K	1	
R25	ERJ3GEYJ104Z	1/16W 100K	1	
R27	ERJ3GEYJ392V	1/16W 3.9K	1	
R28	ERJ3GEYJ100V	1/16W 10	1	
R29	ERJ3GEYJ562V	1/16W 5.6K	1	

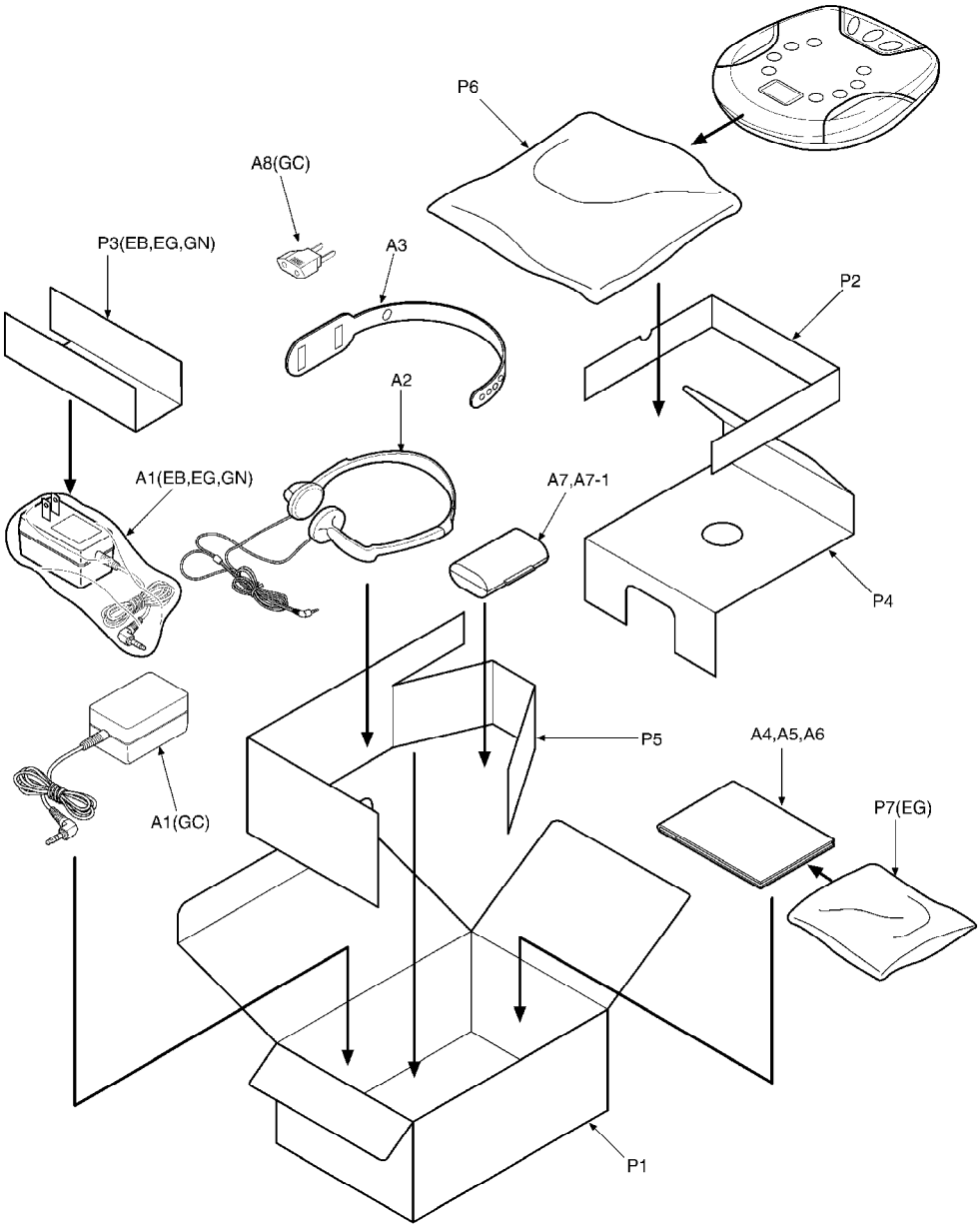
Ref. No.	Part No.	Part Name & Description	Pcs	Remarks
R31	ERJ3GEYJ683V	1/16W 68K	1	
R32	ERJ3GEYJ103Z	1/16W 10K	1	
R113,14	ERJ3GEYJ330V	1/16W 33	2	
R120	ERJ3GEYJ103Z	1/16W 10K	1	
R121,22	ERJ3GEYJ124V	1/16W 120K	2	
R125,26	ERJ3GEYJ124V	1/16W 120K	2	
R127	ERJ3GEYJ473V	1/16W 47K	1	
R201	ERJ3GEYJ2R2V	1/16W 2.2	1	
R202	ERJ3GEYJ223V	1/16W 22K	1	
R203	ERJ3GEYJ1R0V	1/16W 1	1	
R301	ERJ3GEYJ392V	1/16W 3.9K	1	
R302	ERJ3GEYJ223V	1/16W 22K	1	
R303	ERJ3GEYJ102Z	1/16W 1K	1	
R304	ERJ3GEYJ105V	1/16W 1M	1	
R306	EXBV8V473JV	1/8W 47K	1	
R307	ERJ3GEYJ104Z	1/16W 100K	1	
R309	ERJ3GEYJ104Z	1/16W 100K	1	
R403	ERJ3GEYJ123V	1/16W 12K	1	
R404	ERJ3GEYJ273V	1/16W 27K	1	
R405	ERJ3GEYJ333V	1/16W 33K	1	
R406	ERJ3GEYJ104Z	1/16W 100K	1	
R410	ERJ3GEYJ822V	1/16W 8.2K	1	
R411	ERJ3GEYJ393V	1/16W 39K	1	
R431,32	ERJ3GEYJ1R0V	1/16W 1	2	
R433	ERJ3GEYJ333V	1/16W 33K	1	
R434	ERJ3GEYJ683V	1/16W 68K	1	
R435	ERJ3GEYJ473V	1/16W 47K	1	
R436	ERJ3GEYJ153V	1/16W 15K	1	
R437	ERJ3GEYJ391V	1/16W 390	1	
R439	ERJ3GEYJ222V	1/16W 2.2K	1	
R501	ERJ3GEYJ683V	1/16W 68K	1	
R502	ERJ3GEYJ563V	1/16W 56K	1	
R505	ERJ3GEYJ391V	1/16W 390	1	
R506	ERJ3GEYJ222V	1/16W 2.2K	1	
R508	ERJ3GEYJ1R0V	1/16W 1	1	
R509	ERJ3GEYJ223V	1/16W 22K	1	
R510	EXBV4V103JV	1/32W 10K	1	
R511	ERJ3GEYJ472V	1/16W 4.7K	1	
R512	EXBV4V222JV	1/32W 2.2K	1	
R513	ERJ3GEYJ104Z	1/16W 100K	1	
R514	ERJ3GEYJ681V	1/16W 680	1	
R515	ERJ3GEYJ102Z	1/16W 1K	1	
R601,02	ERJ3GEYJ681V	1/16W 680	2	
R603,04	MCR03PZHJ561	1/16W 560	2	
R605,06	ERJ3GEYJ473V	1/16W 47K	2	
R607,08	ERJ3GEYJ102Z	1/16W 1K	2	
R609	EXBV4V332JV	1/32W 3.3K	1	
R701,02	ERJ3GEYJ4R7V	1/16W 4.7	2	
R703-06	ERJ3GEYJ1R5V	1/16W 1.5	4	
R707,08	ERJ3GEYJ472V	1/16W 4.7K	2	
R712-14	ERJ3GEYJ104Z	1/16W 100K	3	
R715,16	ERJ3GEYJ473V	1/16W 47K	2	
R717,18	ERJ3GEYJ683V	1/16W 68K	2	

Ref. No.	Part No.	Part Name & Description	Pcs	Remarks
R719,20	ERJ3GEYJ105V	1/16W 1M	2	
R726	ERJ3GEYJ473V	1/16W 47K	1	
R727	EXBV4V331JV	1/32W 330	1	
R906	ERJ3GEYJ823V	1/16W 82K	1	
R907	ERJ3GEYJ123V	1/16W 12K	1	
R908	ERJ3GEYJ393V	1/16W 39K	1	
R909	ERJ3GEYJ473V	1/16W 47K	1	
RJ1-J3	ERJ3GEY0R00V	CHIP JUMPER	3	
RJ11-13	EYF8CU	TEST JUMPER	3	
RJ701	ERJ3GEY0R00V	CHIP JUMPER	1	
RJ902 03	ERJ3GEY0R00V	CHIP JUMPER	2	
S201	ESE11SV6	SW,LASER ON/OFF	1	
S202	RSP1A024-A	SW,REST DET.	1	
S309	RSS3A007-1A	SW,HOLD	1	
S310	RSS2A010-1A	SW,MODE	1	
VR11	RRN3A05B33WL	V.R.,P.SUPPLY VOL.	1	
VR701	RRV08B02C54A	V.R.,VOLUME	1	
X501	EF0EX1695X4	OSC	1	

16. Cabinet Parts Location



17. Packaging



Printed in Japan (H990707500 AM/TN)

ORDER No. AD9912257S0

A6

Service Manual

Portable CD Player

SL-SW850 / SL-SW851C / SL-SW870

Areas

P.....U.S.A.

PC.....Canada.

EB.....Great Britain.

EG.....Europe and Russia.

GC.....Asia and Saudi Arabia.

GN.....Oceania.

Change of SHEET

Please file and use this supplement manual together with the service manual for / Model No. SL-SW850-P,PC, Order No. AD9905129C1. / Model No. SL-SW850-EB,EG,GC,GN, Order No. AD9907178C8. / Model No. SL-SW851C-PC, Order No. AD9905129C1. / Model No. SL-SW870-P,PC, Order No. AD9905128C1.

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⚠ WARNING

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It does not contain warnings or cautions to advise non-technical individuals of potential dangers in attempting to service a product.
Products powered by electricity should be serviced or repaired only by experienced professional technicians. Any attempt to service or repair the product or products dealt with in this service information by anyone else could result in serious injury or death.

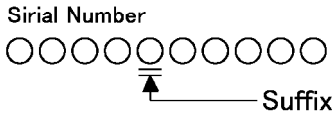
Panasonic®

1. Purpose

This supplement is intended to provide the following information to the / Service Manual above:

- Discs may sustain damage depending on the thickness of the sheets. So we have changed the sheet / thickness from 0.5mm to 0.4mm. When in service repair, please replace 2 sheets together. / Regarding products with Suffix B and those products that follow, their sheets have been improved and, / therefore, no replacement is required of their sheets.

[How to check Suffix] / Find and check the Suffix of the Serial Number / attached to the backside of each set.



2. Replacement Parts List

Ref. No.	Change of Part No.		Part Name & Description	Pcs	Rema
	ORIGINAL	NEW			
22	RMF0280	RMF0288	SHEET	2	CHANGE

Printed in Japan / P991207950 SF/TF / 9910T013/991106

ORDER No. AD0005102S0

A6

Service Manual

Portable CD Player

SL-SW870 / SL-SW850 / SL-SW851C

Colours

(S).....Silver Type (SW870/SW850)

(K).....Black Type (SW870/SW851C)

Areas

P.....U.S.A. (SW870/SW850)

PC.....Canada. (SW870/SW850/SW851C)

EB.....Great Britain. (SW850)

EG.....Europe and Russia. (SW850)

GC.....Asia and Saudi Arabia. (SW850)

GN.....Oceania. (SW850)

Supply of Buckle Kit Parts

Please file and use this supplement manual together with the service manual for / Model No.SL-SW870(P,PC), Order No.AD9905128C1. Supplement Order No.AD9906131S1 / Model No.SL-SW850(P,PC), Order No.AD9905129C1. Supplement Order No.AD9906131S1 / Model No.SL-SW851C(PC), Order No.AD9905129C1. Supplement Order No.AD9906131S1 / Model No.SL-SW850(EB,EG,GC,GN), Order No.AD9907178C8. /

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Products powered by electricity should be serviced or repaired only by experienced professional technicians. Any attempt to service or repair the product or products dealt with in this service information by anyone else could result in serious injury or death.

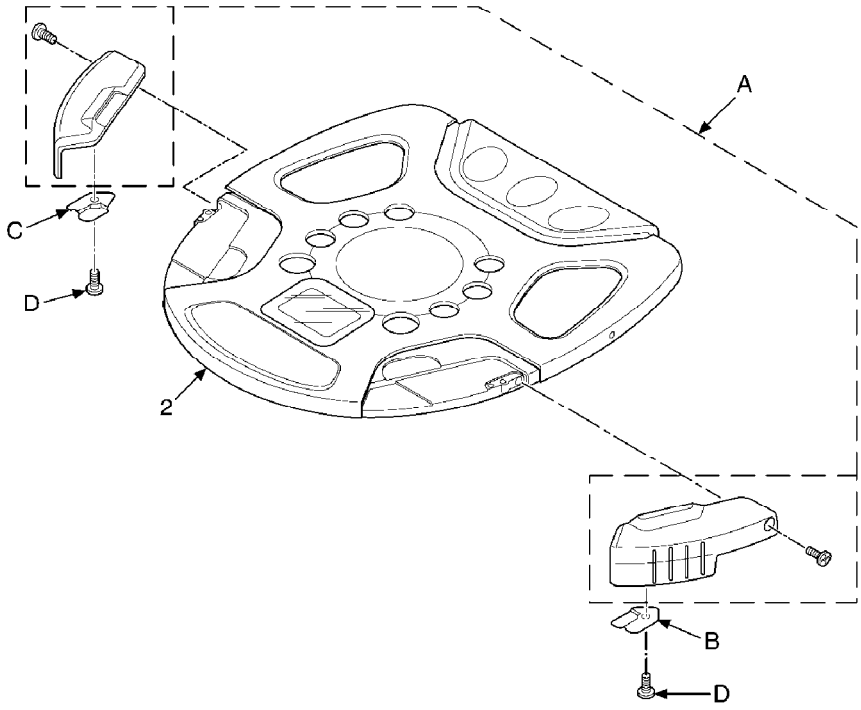
Panasonic®

1. Purpose

This supplement is intended to provide the following information to the / Service Manual above:

- Buckle Kit (Right & Left Sets) Parts will be supplied as replacement parts / for repair of buckle.

2. Buckle Parts Location



3. Replacement Parts List of Buckle

Ref. No.	Part No.	Part Name & Description	Pcs	Remarks
A	RFKNLSW850P	BUCKLE KIT	1	
B	RMA1248-1	ANGLE 1	1	
C	RMA1249-1	ANGLE 2	1	
D	XQN14+BG3FC	SCREW	2	
*2	RYF0533B-A	CD COVER	1	SL-SW870(S)
*2	RYF0533B-R	CD COVER	1	SL-SW870(K)
*2	RYF0533-H	CD COVER(S)	1	SL-SW850(S)
*2	RYF0533A-K	CD COVER(K)	1	SL-SW851C(K)

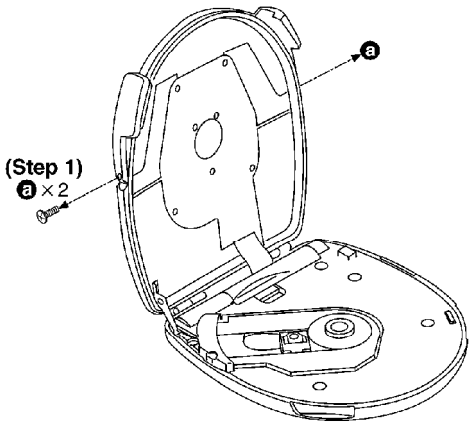
*** CD COVER will be supplied in the same state, that is, with / buckle attached.**

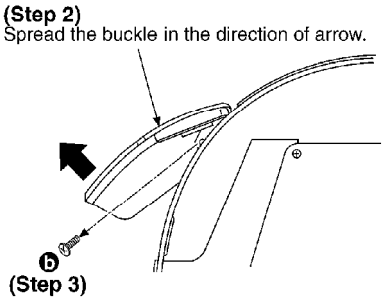
4. Dissolution of buckle ass'y

NOTE:

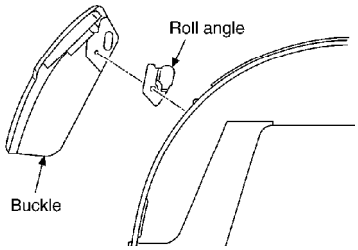
- When replacing the buckle ass'y, make sure to replace a pair of buckle ass'y(both left and right) to new one.

- The following disassembly instructions are shown with buckle ass'y(L). / For buckle ass'y (R), make to disassemble same as to that of buckle ass'y(L).





(Step 4)
Remove the buckle and roll angle.



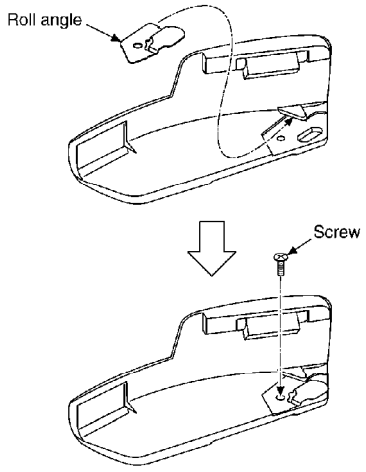
5. Installation of buckle ass'y

NOTE:

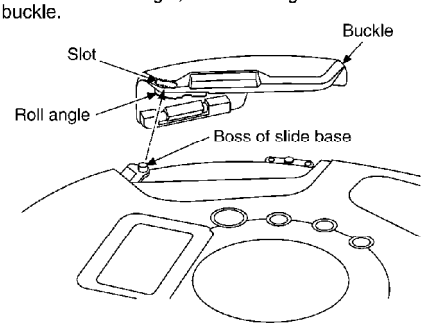
- When replacing the buckle ass'y, make sure to replace a pair of buckle ass'y(both left and right) to new one.

- The following disassembly instructions are shown with buckle ass'y(L). / For buckle ass'y (R), make to reassemble same as to that of buckle ass'y(L).

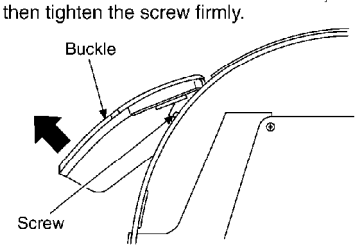
(Step 1)
Install the roll angle to the buckle, and then fix with screw temporarily.
(The screw should be rotated twice.)



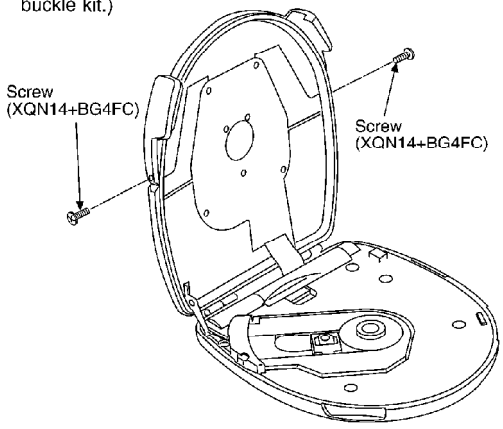
(Step 2)
Install the boss of slide base to the clearance between buckle and roll angle, and then align it with slot of buckle.



(Step 3)
Spread the buckle in the direction of arrow, and then tighten the screw firmly.



(Step 4)
Fix the buckle with screws as illustrated.
(When replacing the buckle, make sure to use the screws (XQN14+BG4FC) which contained in the buckle kit.)



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